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PROCEEDINGS
OF THE
LITERARY AND PHILOSOPHICAL SOCIETY
OF
LIVERPOOL,
DURING THE
SIXTIETH SESSION, 1870-71.
No. XXV.



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PROCEEDINGS
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OF
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SIXTIETH SESSION, 1870-71.
No. XXV.



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- Oct. 11, 1883 Aiken, James, 4, *Gambier-terrace*.
 Nov. 4, 1867 Allen, John Fenwick, *Windleshaw, St. Helens*.
 March 7, 1864 Archer, F., jun., B.A. Trin. Coll., Cantab., 8,
Brunswick-street.
 *Nov. 28, 1853 Archer, T. C., F.R.S.E., F.R.S.S.A., Director of
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 Dec. 14, 1863 Ashe, Theop. Fielding, *Atherton-street*, and *Moss*
Bank, Lodge-lane.
 Feb. 22, 1855 Avison, Thomas, F.S.A., 18, *Cook-street*, and
Fulwood Park, Aigburth.
 Jan. 11, 1864 Bagshaw, John, 87, *Church-street*, and *Canning-*
terrace, 201, *Upper Parliament-street*.
 May 1, 1854 Bahr, G. W., *Old Castle Buildings, South Castle-*
street, and 2, *South-hill Grove, Aigburth*.
 May 4, 1863 Bailey, Fras. J., M.R.C.S., 51, *Grove-street*.
 Oct. 29, 1860 Banister, Rev. W., B.A., *St. James's Mount*.
 Jan. 13, 1862 Baruchson, Arnold, *Batavia Buildings, Hackins*
Hey, and *Blundell Sands, Great Crosby*.
 Nov. 15, 1869 Beer, Joseph B. de (A. Baruchson & Co.), *Bata-*
via Buildings, Hackins Hey.
 March 9, 1857 Bell, Christopher, *Redcross-street*, and 55, *Hamil-*
ton-square, Birkenhead.
 Dec. 10, 1866 Benas, Baron Louis, 5, *South Castle-street*.
 Nov. 14, 1864 Bennett, J. M., *Sir Thomas's Buildings*, and
 109, *Shaw-street*.

- Nov. 27, 1865 Biggs, Arthur Worthington, 15, *Tithebarn-street*, and 62, *Falkner-street*.
- Nov. 18, 1867 Biggs, Russell H. W., 40, *Castle-street*.
- Oct. 31, 1859 Birch, Jas., 12, *The Temple, Dale-street*.
- Jan. 25, 1864 Birchall, James, Governor of the Liverpool Industrial Schools, *Kirkdale*, HON. SECRETARY.
- April 15, 1861 Blake, James, 63, *Kitchen-street*, and 45, *Canning-street*.
- March 9, 1866 Blood, William, *Greta Mount*, 5, *Woodchurch Road, Birkenhead*.
- Nov. 26, 1866 Boulton, Joseph, 15 D, *Exchange Buildings, West*.
- *Mar. 6, 1835 Boulton, Swinton, 1, *Dale-street*, and 71, *Bedford-street, South*.
- Oct. 19, 1868 Bower, Anthony, *Vauxhall Foundry*, and *Bowersdale, Seaforth*.
- Nov. 4, 1867 Bramwell, Ed., *Cowley Hill, St. Helens*.
- March 7, 1870 Brandon, Thomas, *Parkfield, Aigburth-road*.
- *Jan. 8, 1855 Brockholes, James Fitzherbert, *Puddington Old Hall, near Neston*.
- Oct. 31, 1864 Bromham, William, 4, *India Buildings*, and 8, *Montpellier-terrace, Upper Parliament-street*.
- Nov. 12, 1866 Browne, Edgar A., 86, *Bedford-street, South*.
- Oct. 18, 1869 Brown, J. Campbell, D. Sc., F.C.S., 152, *Falkner-street*.
- Feb. 4, 1867 Burden, Edward, 123, *Upper Parliament-street*.
- April 18, 1864 Burne, Joseph, *Royal Insurance Office*, 1, *North John-street*, and *Higher Tranmere*.
- Nov. 12, 1866 Butler, Rev. George, M.A., Oxon., *The College, Liverpool*.
- *May 1, 1848 Byerley, Isaac, F.L.S., F.R.C.S., *Victoria-road, Seacombe*.
- Feb. 23, 1863 Callon, W. J., M.D., 125, *Islington*.
- Nov. 3, 1862 Cameron, John, M.D., M.R.C.P., Physician to the Southern Hospital, and Lecturer on Medicine at the Royal Infirmary School of Medicine, 17, *Rodney-street*.
- Jan. 25, 1869 Cape, John, 15, *Oxford-street*.
- Jan. 9, 1865 Cariss, Astrup, 40, *Castle-street*.
- Dec. 2, 1861 Chadburn, William, 71, *Lord-street*.

- Dec. 1, 1851 Clare, John Leigh, H 24, *Exchange Buildings North, and Hoylake.*
- Oct. 31, 1859 Clark, Charles H., 17, *North John-street, and Linden House, Rock Ferry.*
- Jan. 26, 1863 Commins, Andrew, LL.D. Dub., *Eldon-chambers, 20, South John-street.*
- Nov. 1, 1869 Cook, C. H. (Lamport & Holt), *Drury Buildings, 21, Water-street, and Blundell Sands.*
- Oct. 18, 1869 Cook, Henry Jas., *Byrom-street, and Burbo House, Blundell Sands.*
- Oct. 6, 1863 Crosfield, Wm., jun., 28, *Temple-court, and Alexandra-drive, Ullett Road.*
- Nov. 26, 1866 Curtis, Rev. F. H., M.A. Oxon, *The College, Shaw-street.*
- Feb. 8, 1864 Cuthbert, J. R., 40, *Chapel-street, and White House, Out-lane, Woolton.*
- Dec. 14, 1868 Daly, Dennis, 28, *Brunswick-street.*
- Jan. 24, 1870 Dallinger, Rev. W. H., *Greenfield Road, Old Swan.*
- Nov. 12, 1866 Davies, E., F.C.S., *The Laboratory, Royal Institution, Colquitt-street.*
- Nov. 2, 1863 Dawbarn, William, *The Temple, Dale-street, and Mosley-hill.*
- Oct. 1, 1866 Dawson, Thomas, 26, *Rodney-street.*
- March 9, 1868 Dixon, W., *Somerville House, Poulton Road, Seacombe.*
- Nov. 27, 1863 Dove, Jno. M., *Royal Insurance Office, and Claughton.*
- Jan. 23, 1848 Drysdale, John James, M.D. Edin., M.R.C.S. Edin., 36, *Rodney-street.*
- Feb. 4, 1856 Duckworth, Henry, F.L.S., F.R.G.S., F.G.S., 5, *Cook-street, VICE-PRESIDENT.*
- *Nov. 27, 1848 Edwards, John Baker, Ph.D. Gies., F.C.S., Professor Medical Faculty of Bishop's College, Montreal.
- March 21, 1870 Edwards, Edward E. (Smith, Edwards & Co.), *Adelaide Buildings, 4, Chapel-street.*
- Feb. 24, 1868 Elliot, John, 35, *Peter's-lane.*

- April 7, 1862 English, Charles J., 26, *Chapel-street*, and 26, *Falkner-square*.
- *Dec. 18, 1852 Ferguson, William, F.L.S., F.G.S., 4, *South John-street*, and 2, *St. Aidan's-terrace*, *Birkenhead*.
- Feb. 9, 1868 Finlay, William, Senior Mathematical Master, Middle School, *Liverpool College*, and 111, *Shaw-street*.
- Oct. 1, 1866 Fletcher, Alfred E., F.C.S., H. M. Inspector of Alkali Works for the Western District; 21, *Overton-street*, *Edge-hill*.
- Feb. 20, 1871 Footner, Harry, C.E., 121, *Chatham-street*, *E*, and *Lime-street Station*.
- *Mar. 19, 1855 Ford, James Thomas, 5, *Essex-ct.*, *Temple*, *E.C.*
- *Feb. 6, 1854 Gee, Robert, M.D. Heidelb., M.R.C.P., Lecturer on Diseases of Children, Royal Infirmary School of Medicine; Physician, Workhouse Hospital; 5, *Abercromby-square*.
- Feb. 20, 1865 Gordon, Rev. A., M.A., 49, *Upper Parliament-street*.
- Dec. 2, 1861 Graves, Samuel R., M.P., *Baltic-buildings*, and *The Grange*, *Wavertree*.
- Nov. 14, 1853 Greenwood, Henry, 32, *Castle-street*, and *Falkner-square*.
- Jan. 22, 1855 Hakes, James, M.R.C.S., Surgeon to the Northern Hospital, 30, *Hope-street*.
- Nov. 12, 1867 Halhead, W. B., 7, *Parkfield-road*, *Prince's Park*.
- Feb. 23, 1863 Hall, Charlton R., 17, *Dale-street*.
- Dec. 10, 1866 Hall, Hugh Fergie (Charlton R. Hall & Co.), 17, *Dale-street*, and *Greenheys*, *Grove Road*, *Wallasey*.
- *Jan. 21, 1856 Hardman, Lawrence, 35, *Rock Park*, *Rock Ferry*.
- Nov. 15, 1869 Hartwig, Estevan H. L., *London and Southwark Insurance Co.*, *London*.
- Feb. 6, 1865 Hassan, Rev. E. *Alma-Terrace*, *Sandown-lane*.
- Nov. 13, 1865 Hayward, John Williams, M.D., 117, *Grove-street*.
- Feb. 6, 1865 Hebson, Douglas, 13, *Tower-chambers*, and 58, *Bedford-street*, *South*.

- Dec. 28, 1846 Higgins, Rev. H. H., M.A. Cantab., F.C.P.S.,
Rainhill, Ex-PRESIDENT.
- *Oct. 31, 1886 Higginson, Alfred, M.R.C.S., Surgeon Southern
Hospital, 44, *Upper Parliament-street, VICE-*
PRESIDENT.
- Mar. 22, 1869 Higgin, Thomas, 88, *Tower-buildings.*
- Feb. 20, 1871 Highfield, Samuel, *Manor-road, Liscard.*
- Nov. 16, 1868 Holden, Adam, 48, *Church-street, and 2 Carlton-*
terrace, Milton-road.
- Mar. 9, 1868 Holme, James, jun., 109, *Mount Pleasant.*
- *Dec. 14, 1862 Holt, Robert Durning, 6, *India-buildings, and*
29, Edge-lane.
- *Nov. 18, 1854 Hunter, John, Member Hist. Society, Pennsylvania,
Halifax, Nova Scotia.
- Jan. 26, 1857 Hutton, David, 8, *St. George's-crescent, and 61,*
Canning street.
- *April 29, 1850 Ihne, William, Ph. D. Bonn, *Villa Felseck,*
Heidelberg, Ex-PRESIDENT.
- Feb. 28, 1857 Imlach, Henry, M.D. Edin., 1, *Abercromby-*
square.
- *Oct. 21, 1844 Inman, Thomas, M.D. Lond., M.R.C.P., Phy-
sician Royal Infirmary, 12, *Rodney-street, Ex-*
PRESIDENT.
- Nov. 28, 1864 Jeffery, F. J.
- Mar. 10, 1862 Johnson, Richard, *Queen Insurance-buildings, and*
Blundell Sands.
- Jan. 26, 1868 Johnson, Richard, jun., *Queen Insurance-buildings.*
- Feb. 24, 1868 Jones, Charles W., *The Nook, Gateacre.*
- Nov. 26, 1866 Jones, Edward, B.A., Head Master of Hibernian
School, *Mount Pleasant.*
- *April 4, 1852 Jones, Morris Charles, F.S.A., F.S.A. Scot., 20,
Abercromby-square.
- May 5, 1851 Jones, Roger Lyon, *Liverpool and London Cham-*
bers, Exchange, and 6, Sunnyside, Prince's
Park.
- Oct. 18, 1869 Jones, Wm. Bolton, 21, *South Castle-street.*
- Oct. 2, 1865 Kendal, Robinson, 16, *Water-street, and 178,*
Bedford-street
- Nov. 12, 1866 Kennedy-Moore, Rev. W., M.A., 151, *Canning-st.*

- April 4, 1870 Kenion, Hubert, 2, *Blackburn-place, Hope-street.*
- Nov. 15, 1869 Kent, W. K. 12, *Manor-terrace, Amherst-road, Hackney, London, N.E.*
- Nov. 15 1869 King, Jos., 18, *Exchange Alley, W., and Trelearen House, Blundell Sands.*
- Nov. 1, 1869 Kinsman, W. N., 8, *Derwent Road, Stonycroft.*
- Jan. 10, 1848 Lamport, William James, 21, *Water-street, and New Brighton.*
- *Jan. 14, 1889 Lassell, William, F.R.SS. L. and E., F.R.A.S., 27, *Milton-street, and 58, Wapping.*
- April 27, 1862 Lassell, William, jun., 27, *Milton-street, and Tuebrook.*
- Oct. 21, 1844 Lear, John, 14, *Cook-street, and 22, Holland-terrace, Duke-street, Edge Hill.*
- Dec. 10, 1860 Leyland, Joseph, *Williamson-square.*
- Nov. 2, 1868 Lloyd, James, Vice-Consul, Argentine Confederation, 150, *Chatham-street.*
- *Oct. 21, 1844 M'Andrew, Robert, F.R.S., F.L.S., *Isleworth House, Isleworth, London, EX-PRESIDENT.*
- April 17, 1865 MacCheane, Wm., M.R.C.S., 47, *Shaw-street.*
- March 9, 1857 MacFie, Robert Andrew, M.P., *Leith Offices, Moorfields, and Ashfield Hall, Neston, Cheshire.*
- Oct. 4, 1869 Macalister, W. B. (National Steam Ship Co., Water-st.), 18, *Alexandra-terrace, Prince's-road.*
- April 20, 1868 Marples, David, 50B, *Lord-street, and Sandon-terrace, 119, Oxton-road, Birkenhead.*
- Nov. 14, 1870 Marples, Joseph, 28, *Leece-street, and 58, Victoria-road, Tranmere Park.*
- Feb. 24, 1868 Marsh, Jno., *Rann Lee, Rainhill.*
- Jan. 21, 1889 Martin, Studley, 80, *Exchange, and 177, Bedford-street, South.*
- Feb. 20, 1871 Mason, A. H., 317, *Upper Parliament-street.*
- Feb. 5, 1844 Mayer, Joseph, F.S.A., F.R.A.S., F.E.S., 68, *Lord-st., and Pennant's House, Lower Bebington.*
- *Oct. 21, 1867 Muspratt, E. K., *Seaforth Hall, Seaforth.*
- Oct. 31, 1859 Moore, Thomas John, Corr. Mem. Z.S., Curator Free Public Museum, *William Brown-street.*
- Nov. 2, 1868 Moore, J. Murray, M.D. Edin., 6, *Oxford-street.*

- Nov. 15, 1869 Morgan, Alfred, *Victoria Park, Wavertree*, **HON. LIBRARIAN.**
- Jan. 8, 1855 Morton, George Highfield, F.G.S., 9, *London-road.*
- April 16, 1849 Moss, Rev. John James, B.A., *Upton, Cheshire.*
- Oct. 29, 1850 Mott, Albert Julius, *Church-street, and Sandfield, Waterloo*, **HON. TREASURER.**
- April 8, 1854 Mott, Charles Grey, 27, *Argyle-street, Birkenhead, and Cavendish-road, Birkenhead Park.*
- Nov. 27, 1865 Mountfield, William B., 12, *St. James's-road.*
- Nov. 2, 1868 M'Coskry, W., 14, *Cook-street.*
- Mar. 21, 1870 M'Quie, P. B., 12, *Preeson's-row, and Blundell Sands.*
- Oct. 20, 1856 Nevins, John Birkbeck, M.D. Lond., M.R.C.S., Lecturer on *Materia Medica*, Royal Infirmary School of Medicine, 8, *Abercromby Square*, **PRESIDENT.**
- Feb. 6, 1865 Newton, John, M.R.C.S., 20, *Marmaduke-street, Edge Hill.*
- Nov. 2, 1868 Norrie, Rev. B. A. W., *Rainhill.*
- *Oct. 15, 1855 North, Alfred, 50, *Kensington Gardens Square, Paddington, London, W.*
- Nov. 18, 1861 Nugent, Rev. James, 1, *Hornby-road, Walton.*
- Dec. 10, 1866 Owen, Peter (Farnworth & Jardine), *Liverpool and London Chambers.*
- Feb. 21, 1870 Packer, James Macnamara, M.D., *Rose Cottage, Poplar Bank, Huyton.*
- Jan. 9, 1871 Patterson, John., 16, *Devonshire-road, Prince's Park.*
- Feb. 20, 1871 Pendlebury, Richard, B.A., *Fellow of St. John's College, Cambridge.*
- Nov. 4, 1861 Philip, Thomas D., 49, *South Castle-street, and Holly-road, Fairfield.*
- Dec. 28, 1846 Picton, James Alanson, F.S.A., Chairman of the Library and Museum Committee, 11, *Dale-street, and Sandy-knowe, Wavertree*, **EX-PRESIDENT.**
- April 80, 1866 Prag, Rev. Jacob, 85, *Mount-street.*
- Mar. 8, 1869 Parratt, Thos. P., 8, *Belvidere-road, Prince's-park.*

- *Jan. 22, 1866 Raffles, William Winter, 54, *Brown's-buildings, and Sunnyside, Prince's Park.*
- Nov. 12, 1860 Rathbone, Philip H., *Liverpool and London Chambers (H), and Greenbank cottage, Wavertree.*
- Mar. 24, 1862 Rathbone, Richard Reynolds, 11, *Rumford-street, and Beechwood House, Grassendale.*
- *Jan. 7, 1856 Rawlins, Charles Edward, jun., 12, *Rumford-court, Rumford-place, and Rock Mount, Rainhill.*
- Jan. 9, 1870 Rawlins, Gerald W., *Brook Cottage, Rainhill.*
- Oct. 17, 1870 Rayner, Joseph, Town Clerk, *Municipal Offices, Dale-street.*
- *Nov. 17, 1851 Redish, Joseph Carter, 6, *Dingle-lane.*
- Dec. 12, 1870 Rickard, Wm., LL.D., *Alverton House, 86, Upper Parliament-street.*
- Nov. 29, 1869 Roberts, Isaac, F.G.S., 26, *Rock Park, Rock Ferry.*
- Feb. 4, 1867 Robinson, Joseph F., 9, *Orange-court.*
- Oct. 4, 1869 Rogers, J. Frederick (Dart & Rogers), *The Temple, Dale-street, and 17, Grove-park, Lodge-lane.*
- Dec. 18, 1869 Roulston, Robt. W., 44, *Castle-street.*
- April 18, 1854 Rowe, James, 16, *South Castle-street, and 105, Shaw-street.*
- Feb. 20, 1865 Samuel, Albert H. (Evans, Son, & Co.), *Wood-street, and Canning-terrace, Upper Parliament-street.*
- April 7, 1862 Samuel, Harry S., 11, *Orange-court, and 2, Canning-street.*
- Mar. 19, 1866 Sephton, Rev. John, M.A., *Liverpool Institute.*
- Nov. 2, 1868 Sharp, Charles, *Liverpool Institute.*
- Nov. 16, 1863 Sheldon, E. M., M.R.C.S., 223, *Boundary-street.*
- Oct. 29, 1866 Shimmin, Hugh, 56, *Cable-street, and Tue-Brook, West Derby.*
- Nov. 2, 1863 Skillicorn, John E., 7, *The Willows, Breck-road.*
- Nov. 7, 1864 Skinner, Thomas, M.D. Edin., *Dunedin House, 64, Upper Parliament-street.*
- *April 21, 1862 Smith, James, *Barkeley House, Seaforth, and 7, Water-street.*
- Feb. 28, 1863 Smith, J. Simm, *Royal Insurance Office, North John-street.*

- Dec. 10, 1866 Smith, Elisha (Henry Nash & Co.), 5, *India-buildings*.
- April 4, 1870 Smith, James, 11, *Lord-street*.
- Feb. 24, 1862 Snape, Joseph, Lecturer on Dental Surgery, Royal Infirmary School of Medicine, 75, *Rodney-street*.
- Nov. 12, 1860 Spence, Charles, 4, *Oldhall-street*.
- Feb. 10, 1862 Spence, James, 18, *Brown's-buildings, Exchange, and 10, Abercromby-square*.
- Nov. 27, 1865 Spola, Luigi, LL.D., 85, *Boundary-lane, West Derby-road*.
- Nov. 29, 1869 Statham, H. H., junr., 5, *Batavia Buildings, Hackins Hey*.
- Jan. 18, 1868 Stearn, C. H., 8, *Eldon-terrace, Rock Ferry*.
- Dec. 14, 1857 Steele, Robert Topham, 4, *Water-street, and Wavertree*.
- Jan. 9, 1865 Stewart, Robert E., L.D.S., R.C.S., Dental Surgeon, Southern Hospital, and Liverpool Dental Hospital, 87, *Rodney-street*.
- Oct. 18, 1858 Stuart, Richard, 11, *Manchester-buildings, and Brooklyn Villa, Breeze-hill, Walton*.
- Dec. 18, 1869 Tate, Alexander Norman, 7, *Irwel Chambers, Fazakerley-street, Oldhall-street*.
- *Feb. 19, 1855 Taylor, John Stopford, M.D. Aberd., F.R.G.S., 1, *Springfield, St. Anne-street*.
- Jan. 28, 1848 Taylor, Robert Hibbert, M.D. Edin., L.R.C.S. Ed. Lect. on Ophthalmic Medicine, Royal Infirmary School of Medicine, 1, *Percy-street*.
- Nov. 17, 1850 Tinling, Chas. 44, *Cable-street, and 29, Onslow Road, Elm Park*.
- Dec. 1, 1851 Townson, John Thomas, F.R.G.S., Scientific Examiner Sailors' Home, 47, *Upper Parliament-street*.
- Jan. 7, 1867 Trimble, Robt., *Cuckoo-lane, Little Woolton*.
- *Feb. 19, 1844 Turnbull, James Muter, M.D. Edin., M.R.C.P., Physician Royal Infirmary, 86, *Rodney-street*.
- Oct. 21, 1861 Unwin, William Andrew, 11, *Rumford-place*.
- Oct. 21, 1844 Vose, James Richard White, M.D. Edin., F.R.C.P., Physician Royal Infirmary, 5, *Gambier-terrace*.

- Mar. 18, 1861 Walker, Thomas Shadford, M.R.C.S., 82, *Rodney-street*.
- Jan. 27, 1862 Walmsley, Gilbert G., 50, *Lord-street*.
- Jan. 9, 1865 Walthew, William, *Phoenix Chambers*, and *Vine Cottage, Aughton*.
- Dec. 18, 1869 Waterhouse, Harold, 87, *Catherine-street*.
- Dec. 2, 1861 Weightman, William Henry, *Minster Buildings*, *Church-street*, and *Cambridge-road, Seaforth*.
- April 7, 1862 Whittle, Ewing, M.D., Lecturer on Medical Jurisprudence, Royal Infirmary School of Medicine, 77A, *Upper Parliament-street*.
- Jan. 18, 1868 Whitworth, Rev. W. A., M.A., 185, *Islington*.
- Mar. 18, 1861 Wood, Geo. S. (Messrs. Abraham & Co.), 20, *Lord-street*, and *Bellevue-road, Wavertree*.
- Nov. 14, 1870 Wood, W. (Messrs. Abraham & Co.), 20, *Lord-st.*
- Nov. 14, 1870 Wood, John J. (Messrs. Abraham & Co.), 20, *Lord-street*.
- Oct. 17, 1870 Woodburn, Thos., 18, *Law Association Buildings*, 18, *Harrington-street, W.*

HONORARY MEMBERS.

LIMITED TO FIFTY.

- 1.—1819 John Stanley, M.D. Edin., *Whitehaven*.
- 2.—1827 Rev. William Hincks, F.R.S.E., F.L.S., Professor of Natural History in University College, *Toronto, C.W.*
- 3.—1838 The Right Hon. Dudley Ryder, Earl of Harrowby, K.G., D.C.L., F.R.S., *Sandon-hall, Staffordshire*, and 89, *Grosvenor-square, London, W.*
- 4.—1836 The Most Noble William, Duke of Devonshire, K.G., M.A., F.R.S., F.G.S., &c., Chancellor of the University of Cambridge, *Devonshire House, London, W.*, and *Chatsworth, Derbyshire*.
- 5.—1838 George Biddell Airy, M.A., D.C.L., F.R.S., Hon. F.R.S.E., Hon. M.R.I.A., V.P.R.A.S., F.C.P.S., &c., Astronomer Royal, *Royal Observatory, Greenwich*.
- 6.—1840 James Nasmyth, F.R.A.S., *Penshurst, Kent*.
- 7.—1840 Richard Duncan Mackintosh, L.R.C.P., *Exeter*.
- 8.—1841 Charles Bryce, M.D., Glasg., Fell.F.P.S.G., *Brighton*.
- 9.—1844 T. P. Hall, *Coggleshall, Essex*.
- 10.—1844 Peter Rylands, *Warrington*.
- 11.—1844 John Scouler, M.D., LL.D., F.L.S., *Glasgow*.
- 12.—1844 Thomas Rymer Jones, F.R.S., F.Z.S., F.L.S., Professor of Comparative Anatomy, *King's College, London*.
- 13.—1844 Robert Patterson, F.R.S., M.R.I.A., *Belfast*.
- 14.—1854 Sir Charles Lemon, Bart., M.A. Cantab., F.R.S., F.G.S., *Penrhyn, Cornwall*.
- 15.—1844 William Carpenter, M.D. Edin., F.R.S., F.L.S., F.G.S., Registrar, *London University*.
- 16.—1848 Rev. Thomas Corser, M.A., *Strand, Bury*.
- 17.—1850 Rev. St. Vincent Beechy, M.A. Cantab., *Worsley, near Eccles*.

- 18.—1851 James Smith, F.R.S.S.L. and E., F.G.S., F.R.G.S.,
Jordan-hill, Glasgow.
- 19.—1851 Henry Clarke Pidgeon, *London.*
- 20.—1851 Rev. Robert Bickersteth Mayor, M.A., Fell. St. John's
College, Cantab., F.C.P.S., *Rugby.*
- 21.—1852 William Reynolds, M.D., *Coed-du, Denbighshire.*
- 22.—1853 Rev. James Booth, LL.D., F.R.S., &c., *Stone, near
Aylesbury.*
- 23.—1857 Thomas Jos. Hutchinson, F.R.G.S., F.R.S.L., F.E.S.,
H.B.M. Consul, *Callao, Peru.*
- 24.—1861 Louis Agassiz, Professor of Natural History in Harvard
University, *Cambridge, Massachusetts.*
- 25.—1861 Sir William Fairbairn, Bart., LL.D., C.E., F.R.S.,
Polygon, near Manchester.
- 26.—1861 Rev. Thomas P. Kirkman, M.A., F.R.S., *Croft Rectory,
Warrington.*
- 27.—1862 The Right Rev. H. N. Staley, D.D., Bishop of Hono-
lulu, *Sandwich Islands.*
- 28.—1863 Edward J. Reed, *Hyde Vale, Greenwich, S.E.*
- 29.—1865 John Edward Gray, Ph. D., F.R.S., &c., *British
Museum.*
- 30.—1865 George Rolleston, M.D., F.R.S., Linacre Professor of
Physiology in the University of Oxford,
Oxford.
- 31.—1865 Cuthbert Collingwood, M.A. and M.B. Oxon, F.L.S.
- 32.—1867 J. W. Dawson, LL.D., F.R.S., F.G.S., &c., Principal
and Vice-Chancellor of McGill University,
Montreal.
- 33.—1868 Captain Sir James Anderson, *Atlantic Telegraph Com-
pany, London.*
- 34.—1870 Sir Roderick J. Murchison, Bart., K.C.B., *Belgrave-
square, London.*
- 35.—1870 Sir John Lubbock, Bart., M.P., F.R.S., *High Elms,
Farnborough, Kent.*
- 36.—1870 Henry E. Roscoe, F.R.S., Professor of Chemistry in
Owen's College, Manchester.
- 37.—1870 Professor Joseph Henry, Secretary to the Smithsonian
Institute, *Washington, U. S.*
- 38.—1870 Professor Wyville Thompson, F.R.S., *Belfast.*

- 39.—1870 Joseph Hooker, M.D. F.R.S., *Royal Observatory, Kew.*
 40.—1870 Professor Brown-Séquard, M.D.
 41.—1870 Jno. Gwyn Jeffreys, F.R.S., 25, *Devonshire-place, Portland-place, London.*
 42.—1870 Thos. H. Huxley, LL.D., F.R.S., Professor of Natural History in the Royal School of Mines, *Jermyn-street*, and 26, *Abbey-place, St. John's-wood, London.*
 43.—1870 John Tyndall, LL.D., F.R.S., Professor of Natural Philosophy in the *Royal Institution, London.*
 44.—1870 Rev. Christian D. Ginsburg, LL.D., *Binfield, Bracknell, Berks.*
 45.—1870 Professor W. J. M. Rankine, F.R.S., *Glasgow University.*

CORRESPONDING MEMBERS.

LIMITED TO THIRTY-FIVE.

- 1.—1867 Albert C. L. G. Günther, M.A., M.D., Ph.D., British Museum, Editor of the "Zoological Record."
 2.—1867 J. Yate Johnson, *London.*
 3.—1867 R. B. N. Walker, *Gaboon, West Africa.*
 4.—1868 Rev. J. Holding, M.A., F.R.G.S., *London.*
 5.—1868 Geo. Hawkins, *Colombo, Ceylon.*
 6.—1868 J. Lewis Ingram, *Bathurst, River Gambia.*
 7.—1869 Geo. Mackensie, *Cebu, Philippine Islands.*
 8.—1870 Rev. Joshua Jones, D.C.L., King William's College, *Isle of Man.*

ASSOCIATES.

LIMITED TO TWENTY-FIVE.

- 1.—Jan. 27, 1862 Captain John H. Mortimer, "America,"
(Atlantic.)
- 2.—Mar. 24, 1862 Captain P. C. Petrie, "City of London,"
Commodore of the Inman Line of American
Steam Packets. (Atlantic.)
- 3.—Feb. 9, 1863 Captain James P. Anderson, R.M.S.S.
"Africa," Cunard Service. (Atlantic.)
- 4.—Feb. 9, 1863 Captain John Carr, (Bushby and Edwards,) ship
"Scindia." (Calcutta.)
- 5.—Feb. 9, 1863 Captain Charles E. Price, R.N.R., (L. Young
and Co.,) ship "Cornwallis." (Calcutta and
Sydney.)
- 6.—April 20, 1863 Captain Fred. E. Baker, ship "Niphon."
(Chinese Seas.)
- 7.—Oct. 31, 1864 Captain Thomson, ship "Admiral Lyons."
(Bombay.)
- 8.—Oct. 31, 1864 Captain Alexander Browne, (Papayanni,) S. S.
"Agia Sofia." (Mediterranean.)
- 9.—Oct. 31, 1864 Captain Whiteway, ship "Annie Chesshyre."
(Pacific.)
- 10.—April 13, 1865 Captain Alexander Cameron (Boult, Eng-
lish, and Brandon), ship "Staffordshire."
(Shanghai.)
- 11.—Dec. 11, 1865 Captain Walker, ship "Trenton."
- 12.—Mar. 23, 1868 Captain David Scott.
- 13.—Oct. 5, 1868 Captain Cawne Warren.
- 14.—Oct. 5, 1868 Captain Perry.
- 15.—Mar. 22, 1869 Captain Robert Morgan, ship "Robin Hood."

ADDITIONS TO THE LIBRARY.

1870.

OCTOBER 17th.

- Journal of the Society of Arts, nos. 908-931 . . . *The Society.*
 Transactions of the Historic Society, 1868,
 1869 *The Society.*
 Collections of the Surrey Archæological Society,
 vol. 5, part 1 *The Society.*
 The English Mechanic *The Publisher.*
 Natural History Transactions of Northumber-
 land and Durham, vol. 8, part 2 . . . *The Society.*
 Annual Report, &c., Plymouth Institution, vol.
 4, part 1 *The Society.*
 Proceedings, Liverpool Naturalists' Field-Club,
 1869-70 *The Society.*
 Proceedings, Society of Antiquaries of London,
 vol. 4, no. 7 *The Society.*
 Proceedings, Meteorological Society, vol. 5,
 nos. 48, 49, 50 *The Society.*
 Journal of the Linnæan Society, vol. 11, nos.
 53-55 *The Society.*
 Journal of the Linnæan Society, vol. 10, no. 48 *The Society.*
 Proceedings of the Linnæan Society . . . *The Society.*
 Journal of Anthropology, no. 1, (July, 1870) . *The Society.*
 Journal, Statistical Society, June, 1870 . . . *The Society.*
-

OCTOBER 31st.

- Monthly Notices, Royal Astronomical Society,
 vol 80, nos. 6, 7, 8 *The Society.*

- Proceedings, Royal Geographical Society, vol.
 14, nos. 2, 3, 4 *The Society.*
 Proceedings, Royal Society, vol. 18, no. 118–
 122 *The Society.*
 Journal of the Chemical Society, Apr. to Sept.,
 (6 nos.) *The Society.*
 Journal of the Franklin Institute, vol. 59, nos.
 1–6 *The Institute.*
 Journal of the Franklin Institute, vol. 60, nos.
 1, 2 *The Institute.*
 Canadian Journal, April, 1870 . . . *Canadian Institute.*
 Proceedings of Zoological Society, 1869, parts
 2, 3 *The Society.*
 Schriften der Königlich-Physikalisch,
 (Ökonomischen Gesellschaft zu Königsberg
 Jahrgang, 1867, (1, 2, Abtheilung.) 1868,
 (1, 2, Abtheilung.) 1869, (1, 2, Abtheilung.) *The Society.*
 Clark's Ante-Nicene Library:
 Apocryphal Gospels, Acts and Revelations *R. A. Macfie, Esq.*
 Writings of Tertullian, vol. 2 . . . *R. A. Macfie, Esq.*
-

NOVEMBER 14th.

- Warwickshire Natural History and Archæo-
 logical Society. Thirty-fourth Annual Report,
 1870 *The Society.*
 Liverpool Medical and Surgical Reports, vol. 4 . *The Editors.*
 Journal, Scottish Meteorological Society, April,
 1870; July, 1870 *The Society.*
 History of the Soda Manufacture, by W.
 Gossage, F.C.S. *The Author.*
 Journal, Anthropological Society, Oct., 1870 . *The Society.*
 Journal, Linnæan Society, vol. 2, no. 49,
 Zoology *The Society.*
 Journal, Chemical Society, October, 1870 . *The Society.*
 Journal, Statistical Society, September, 1870 . *The Society.*

- Journal, Royal Dublin Society, no. 89 . . . *The Society.*
 Royal Institution of Great Britain, Annual
 Report of 1870 *The Institution.*
 Proceedings of the Royal Institution, vol. 5,
 part 7 ; vol. 6, parts 1 and 2 . . . *The Institution.*
 Monthly Notices, Royal Astronomical Society,
 vol. 80, no. 9 *The Society.*
 The English Mechanic *The Publisher.*
 Leeds Philosophical and Literary Society,
 Annual Report, 1870 *The Society.*
 Journal of the Society of Arts, nos. 982-986 . *The Society.*
-

NOVEMBER 28th.

- Smithsonian Report, 1868 *The Institute.*
 American Philosophical Society, Proceedings of,
 vol. 2, no. 82 *The Society.*
 United States Geological Survey of Colorado
 and New Mexico, by F. V. Hayden, M.D. *U. S. Government.*
 Geological Report of the Exploration of the
 Yellowstone and Missouri Rivers, by F. V.
 Hayden, M.D. *U. S. Government.*
 Catalogue of Birds in Costa Rica, from the
 Lyceum of Natural History, New York . *The Society.*
 Proceedings, &c., Essex Institute, Salem, United
 States, vol 6, part 1 *The Institute.*
 Bulletin of Proceedings, &c., Essex Institute,
 Salem, United States, vol. 1 *The Institute.*
 Proceedings of the American Academy of Arts
 and Sciences, vol. 8 *The Academy.*
 Journey to Musardu, by Benjamin Anderson . *The Author.*
 Report of the Invertebrata of Massachusetts,
 by Dr. Gould *The Author.*
 Boston Society of Natural History, Proceedings
 of, vol. 12 *The Society.*

- Boston Society of Natural History—Address on
Centennial Anniversary of the Birth of A.
Von Humboldt, by Louis Agassiz . . . *The Society.*
- Monthly Report of the Deputy Special Commis-
sioners of the Revenue, United States . . . *U. S. Government.*
- Smithsonian Miscellaneous Collections, vols.
8 & 9 *The Institute.*
- Smithsonian Contributions to Knowledge, vol. 16 *The Institute.*
- Annual Report of the Secretary of the Interior,
1869, United States *U. S. Government.*
- Clinical Society's Transactions, vol. 3 . . . *The Society.*
- Journal, Liverpool Polytechnic Society . . . *The Society.*
- Proceedings, Architectural and Archæological
Society, Liverpool *The Society.*
-

1871.

JANUARY 9th.

- Greenwich Observations and Appendix, 1868 *The Admiralty.*
- Medico Chirurgical Transactions, vol. 53. . . *The Society.*
- On the Thermodynamic Theory of Waves, and
Remarks on Heppel's Theory of Continuous
Beams, &c., by Professor Rankine . . . *The Author.*
- Proceedings, Liverpool Chatham Society, 1869
-70 *The Society.*
- Proceedings, American Philosophical Society,
vol. 11, no. 82 *The Society.*
- Proceedings, Society of Antiquaries of London,
vol. 4, no. 8 *The Society.*
- Proceedings, Institution of Mechanical En-
gineers, Nottingham Meeting, 1870 . . . *The Institution.*
- Journal, Chemical Society, November . . . *The Society.*
- Canadian Journal, October . . . *The Canadian Institute.*
- Monthly Notices, Royal Astronomical Society,
November *The Society.*

- 18th Annual Report, Public Free Libraries of
 Manchester *The Mayor & Corporation.*
 Journal, Franklin Institute, September and
 October *The Institute.*
 Journal, Society of Arts, 937 to 944 *The Society.*
 The English Mechanic *The Publisher.*
 Journal of the Liverpool Polytechnic Society . *The Society.*
 Proceedings of the Liverpool Architectural and
 Archæological Society. *The Society.*
-

FEBRUARY 20th.

- Journal of the Society of Arts, nos. 930 to 951 *The Society.*
 Journal of the Chemical Society, December and
 January *The Society.*
 Proceedings of the Royal Society, vol. 19, no.
 124 *The Society.*
 Proceedings of the Linnæan Society of London,
 November. *The Society.*
 Colonial Questions, by R. A. Macfie, M.P. . *The Author.*
 Transactions of the Royal Scottish Society of
 Arts, vol. 8, part 2 *The Society.*
 Transactions of the Historic Society, 1869-70. *The Society.*
 Journal of Anthropology, January *The Society.*
 Journal of the Franklin Institute, November
 and December *The Institute.*
 Proceedings of the Meteorological Society,
 November *The Society.*
 Monthly Notices, Royal Astronomical Society,
 vol. 31, no. 2 *The Society.*
 Journal of the Statistical Society, December . *The Society.*
 Memoirs de la Société Imperiale des Sciences
 Naturelles de Cherbourg, tomes 13 and 14 . *The Society.*
 Clark's Ante Nicene Library:
 Works of Tertullian, vol. 8 *R. A. Macfie, Esq.*

- Clementine Homilies, &c. *R. A. Macfie, Esq.*
 The English Mechanic *The Publisher.*
 Elementary Education, by Dr. Hume *The Author.*
 Proceedings of the Liverpool Architectural and
 Archæological Society *The Society.*
 Journal of the Polytechnic Society *The Society.*
 Proceedings of the Society of Antiquaries, vol.
 4, no. 9 *The Society.*
 Journal of the Royal Asiatic Society, vol. 5,
 part 1 *The Society.*
 Eighteenth Report of the Liverpool Free Public
 Library, &c. *The Mayor and Corporation.*
-

MARCH 20th.

- Journal of the Society of Arts, nos. 947 to 955 *The Society.*
 Journal of the Linnæan Society, vol. 11, no. 50 *The Society.*
 Proceedings of the Royal Society of Edinburgh,
 1869-70. *The Society.*
 On a Localised Outbreak of Typhoid Fever in
 Islington, Traced to the Use of Impure Milk,
 by Dr. Ballard *The Author.*
 Proceedings of the American Association for the
 Advancement of Science, August, 1869 *The Association.*
 Proceedings of the Berwickshire Naturalists'
 Club, 1870 *The Society.*
 Proceedings of Royal Society, vol. 19, no. 125 *The Society.*
 Journal of the Chemical Society, February . *The Society.*
 Abstract of the Proceedings of the Liverpool
 Geological Society, 1869-70 *The Society.*
 Forty-sixth Annual Report of the Directors of
 the Liverpool Institute, 1871 *The Directors.*
 Proceedings, Liverpool Architectural and
 Archæological Society, November, 1870 . *The Society.*
 Journal, Liverpool Polytechnic Society . . *The Society.*
-

APRIL 17th.

- Journal, Scottish Meteorological Society, Oct.
to January *The Society.*
- Journal, Chemical Society, March *The Society.*
- Journal, Society of Arts, 955 to 959 . . . *The Society.*
- Monthly Notices, Royal Astronomical Society,
February *The Society.*
- Proceedings, Meteorological Society, January
and February *The Society.*
- Proceedings, Royal Society, vol. 19, no. 126 . *The Society.*
- The Abbey of Ystrad Marchell, by Morris C.
Jones, F.S.A. *The Author.*
- Annual Report, &c., West Kent Natural History,
&c. Society *The Society.*
- Journal, Liverpool Polytechnic Society . . *The Society.*
- Proceedings of the Liverpool Architectural and
Archæological Society *The Society.*

PROCEEDINGS
OF THE
LIVERPOOL
LITERARY AND PHILOSOPHICAL SOCIETY.

ANNUAL MEETING.—SIXTIETH SESSION.

ROYAL INSTITUTION, October 3rd, 1870.

J. BIRKBECK NEVINS, M.D., PRESIDENT, in the Chair.

The Minutes of the last Meeting of the previous Session were read and signed, after which the Honorary Secretary read the following

REPORT.

The Council of the Literary and Philosophical Society, after reviewing the work of the past Session, have again to congratulate the members upon the steady progress of the Society, and its present prosperous condition. The roll of the Society contains six more members than were upon the list of the previous year; and the Papers comprised in the volume now ready for distribution are of a varied and interesting character.

It is, however, very desirable that a greater number of members should be found amongst the contributors; for which reason the Council would urge those who have not yet

exerted themselves in this respect, to write short papers upon particular points of literary or scientific inquiry. This would materially add to the interest of the sessional meetings, give greater comprehensiveness to the volume of Proceedings, and afford increased opportunities to those who have information to communicate.

The Council refer with peculiar satisfaction to the recent visit of the British Association to Liverpool. The interest which attached to its meetings, and the general welcome which it received, are causes of much congratulation to the members of this and the kindred societies of the town, who, it is to be hoped, will be stimulated to greater exertions by the example and influence of so eminent a scientific gathering. As a memento of this visit, the Council recommend the election of the following distinguished members of the Association as Honorary Members of the Society—Professors Huxley, Tyndall, Rankine, Roscoe, Henry, and Wyville Thomson, Sir Jno. Lubbock, Sir Roderick Murchison, Dr. Brown-Sequard, Dr. Hooker, and Mr. J. Gwyn Jeffreys.

The number of ordinary members on the Society's roll amounts to two hundred and six, of whom twenty-four were admitted during last session, being six in excess of the number of withdrawals. The list of honorary members is gradually being reduced by deaths, and now contains only thirty-four names. The corresponding members are eight in number, and the associates fifteen. Among the names removed by death are those of the late lamented Charles Dickens, honorary member, and Captain Berry, associate. A notice of the services rendered to the Society by the latter will appear in the forthcoming volume of the Society's Proceedings.

The removal of the Rev. Dr. Ginsburg from the neighbourhood, and his consequent withdrawal from the Society as an ordinary member, will be heard of with regret.

The learned papers upon 'abstruse points of Hebraistic literature, which he has contributed from time to time, have conferred a high value upon the volumes of Proceedings, and extended the Society's reputation; while his zealous devotion to its interests and welfare, and the genial and efficient manner in which he discharged the duties of the Presidential office, will find a cordial record in the kindly remembrances of the members. As some recognition of these services, the Council unanimously recommend to the members the election of their late President as an honorary member.

The Council conclude their report with the nomination of the following gentlemen for election on the new Council for the ensuing session:—Dr. Campbell Brown, Mr. William Crosfield, Jun., Rev. W. H. Dallinger, Dr. Hayward, and Mr. Thos. D. Philip.

The Treasurer then submitted the Annual Statement of Accounts, which, together with the Report, was unanimously adopted.

The election of the Officers for the session was then proceeded with, and the following gentlemen were appointed: Vice-Presidents—Alfred Higginson, M. R. C. S., Arnold Baruchson, Thomas J. Moore, Cor. Mem. Z. S.; Honorary Treasurer—Albert Julius Mott; Honorary Secretary—James Birchall; Honorary Librarian—Christian Flück; Members of Council—Edward Davies, F. C. S., Rev. W. Kennedy-Moore, M. A., Alfred E. Fletcher, F. C. S., G. H. Murton, F. G. S., Rev. W. Banister, B. A., Rev. A. Gordon, M. A., Rev. J. Sephton, M. A., Ewing Whittle, M. D., Joseph F. Robinson, J. Campbell Brown, D. Sc., &c., W. Crosfield,

Jun., Rev. W. H. Dallinger, John W. Hayward, M.D., Thomas D. Philip.

The Associates of the Society were next re-elected, which concluded the special business of the Annual Meeting.

Mr. T. J. MOORE exhibited three specimens of the remarkable Vitreous Anchoring Sponge, lately found at a depth of six hundred fathoms, off Setubal, on the coast of Portugal. They were obtained during the last summer's dredging cruise of Mr. Marshall Hall, in his yacht *Norna*. Mr. Hall was accompanied by Mr. W. S. Kent, of the British Museum, who described them under the name of *Pheronema (Holtenia) Grayi*, in the August number of the *Annals of Natural History*. Two of the specimens were dried just as they had come from the sea-bed; the third had been beautifully cleaned by Mr. Gerrard, Jun., and displayed to the greatest advantage the numerous slender anchoring vitreous filaments, measuring nearly two feet in length. They had been sent to Section D of the British Association, in illustration of a Paper by Dr. J. E. Gray, and Mr. Kent had kindly allowed them to be specially detained for exhibition before this Society. A cordial vote of thanks to Mr. Kent for his courtesy was unanimously carried.

Mr. MOORE also exhibited a specimen of *Holtenia Carpenteri*; a globular sponge, allied to the above, but with short anchoring filaments. This new species of sponge was discovered in the recent deep Atlantic dredgings of H.M.S. *Porcupine*, and had lately been presented to the Free Museum by Professor Wyville Thomson, by whom it had been named.

The President then delivered his Second Inaugural Address, which will be found at length in another part of the volume.*

* See page 1.

FIRST ORDINARY MEETING.

ROYAL INSTITUTION, October 17th, 1870.

J. BIRKBECK NEVINS, M.D., PRESIDENT, in the Chair.

The Rev. Dr. Ginsburg, and Professors Huxley, Tyndall, and Rankine, were unanimously elected honorary members.

Messrs. Joseph Rayner and Thomas Woodburn were balloted for, and duly elected ordinary members.

Mr. T. J. MOORE drew the attention of the Society to two rare sharks, collected by Captain Husband, of the ship *Lightning*, and presented by him to the Free Museum. The first of these is a specimen of *Rhinodon typicus*, a beautifully-spotted shark, having teeth so fine and small as scarcely to be rougher than a file, and presenting many other peculiar characteristics. This species was first made known, nearly forty years back, by Sir Andrew Smith, late Director of the Army Medical Department. A specimen was captured off the Cape of Good Hope, and deposited in the Paris Museum, and up to the present time had been the only known example preserved in any museum. The present acquisition was therefore a very important one. A short Paper on the specimen was read by Mr. Moore, in the Zoological section at the recent meeting of the British Association, and Professor Percival Wright of Dublin, there stated that he had himself seen freshly-caught specimens off the Seychelle Islands, but had been unable to bring home more than fragmentary portions, because the specimens were of enormous size. He had been

able to measure one of them and found it to be forty feet long (the teeth of which were only felt on the drying up of the gum); another, much larger, he estimated at sixty feet; so that this particular species of shark is the largest of living creatures, excepting only the largest whales. From these considerations the specimen obtained by Captain Husband must be comparatively a very young animal, as its extreme length is only ten feet and a half. The other shark presented by Captain Husband is ten feet long; it appears to be the *Lamna Spallanzanii*, or nearly allied thereto, and is a fine example of a formidably-toothed shark. Both specimens were captured on the voyage from Bombay to Liverpool. Mr. Moore stated that, since the meeting of the Association, Surgeon-Major Black had informed him that he had seen a specimen of the *Rhinodon typicus* taken off Natal in 1861. This measured about twenty-five feet.

Mr. MOORE then read the following letter from Captain Thompson, relating a remarkable instance of fecundity in the shark tribe:—

“ Barque *Oriole*, Wapping Dock,
Oct. 12, 1870.

“ Mr. Moore,—Sir, On my voyage from Liverpool to West Africa, and about 150 miles northwest from the island of St. Thomas, situate on the Equator, and long. $6^{\circ} 44' E.$, hooked a shark, opened it, and found it to contain 107 young sharks all alive, which I put into a barrel partly filled with water, where they swam about for several hours, during which time I observed another shark, tried to hook it, but failed: it took no notice whatever of the hook, but lashed the ship's side, actually shaking the entire hull of the ship. Judging from its actions, I came to the conclusion that it was a male shark, and also companion of the captured shark. Herewith I send one of the 107 young ones, also the jawbone of the mother. Trusting they may be of some service to you, I remain, dear Sir, your humble servant,

(Signed)

“ CHARLES THOMPSON,

“ Master barque *Oriole*.

“ Length of captured shark, 13 feet.”

Mr. Moore exhibited the jaw of the mother shark and the preserved young one (twelve inches in length), spoken of in the letter, and stated that from a hammer-headed shark, ten feet long, taken on the British coast off Tenby, in 1839, thirty-nine young ones were taken, all well formed, and averaging nineteen inches in length, as recorded by Couch in his *History of the Fishes of the British Islands*.

A Paper was then read by Mr. JOSEPH BOULT, upon "Speculations on the Former Topography of Liverpool."* An animated discussion ensued, in which Messrs. J. A. Picton, Rogers, and M'Mullen took part, and ultimately a hearty vote of thanks was accorded to Mr. Boulton.

SECOND ORDINARY MEETING.

ROYAL INSTITUTION, October 31st, 1870.

J. BIRKBECK NEVINS, M.D., PRESIDENT, in the Chair.

Ladies were invited to the meeting, and there was a good attendance.

The following gentlemen were unanimously elected honorary members :—

Sir Roderick I. Murchison, Bart., Sir John Lubbock, Bart., Professors Roscoe, Henry, and Wyville Thompson, Dr. Hooker, Dr. Brown-Sequard, and Mr. J. Gwyn Jeffreys.

Mr. T. J. MOORE, exhibited some living fresh-water fish, lately brought from Rio Janeiro by Captain J. A. Perry, of the R.M.S.S. *Pascal*, Associate of the Society, and by him presented to the Free Museum. They belong to the extensive family of *Siluridae*, or Cat fishes, which are remarkable

* See page 11.

for great variety of form and armature. The specimens exhibited are known at Rio by the Indian name of *Camboatá*, and are known to naturalists under the name of *Callichthys asper*. The fishes of this small genus, which have probably never before been seen alive in Europe, are all South American, and are especially remarkable for the peculiarity of their scales, which are broad, strong, and well developed, and form two broad rows only on each side of the fish. It is asserted that the *Camboatás* in the dry season will travel as far as a league over land in search of water, and their strong scales and powerful pectoral spines would greatly aid them in such a proceeding. A similar habit is well known to be practised by the *Anabas scandens*, an Indian fish belonging to a widely different family.

Captain PERRY, who was present, stated that during the voyage several of the specimens jumped out of the globe in which they were suspended in the smoking-room on deck, found their way downstairs, and proceeded to the after end of the cabin, a distance of some seventy feet, and were none the worse for their journey, all being still alive and well.

Mr. MOORE also exhibited two very fine specimens of a beautifully-coloured Coraline, determined by Mr. F. P. Marrat to be *Rhipidigorgia lacuens* of Valenciennes. These were dredged in six or eight fathoms water off Raza Island, near Rio, by Captain Perry, and presented, with other specimens to the museum.

Captain Perry was warmly complimented by the President for his successful exertions in the cause of Natural History.

Dr. WHITTLE then read a Paper descriptive of a recent visit he had made to the small republic of Andorra, in the Pyrenees.* The customary discussion followed, in which Messrs. Inman, Picton, Birchall, M'Mullen, and others took part.

* See page 39.

THIRD ORDINARY MEETING.

ROYAL INSTITUTION, November 14th, 1870.

J. BIRKBECK NEVINS, M.D., PRESIDENT, in the Chair.

Messrs. Joseph Marples, W. Wood and John J. Wood were balloted for, and unanimously elected ordinary members.

During the course of the miscellaneous business, Mr. Joseph Boulton called attention to the very objectionable practice of builders filling up and levelling uneven land with dry earth and ashes from ashpits; and he asked the medical gentlemen present whether such a practice would not be prejudicial to the health of the future occupants of the houses built upon such foundations. Mr. Davies remarked that he considered it very unhealthy, and he was supported in this by Dr. Hayward, and many other gentlemen present.

Mr. Consul HUTCHINSON, from Rosario, River Plate, and now of Callao, Peru, then introduced to the notice of the meeting a scheme for bringing preserved meat over from the River Plate to England, where it might be profitably sold at 4d. a pound. He described the process which he himself had taken in hand, in company with other gentlemen. The fresh meat was immersed for twenty minutes in Bailey's preparation of bisulphite of lime, and then placed in casks and surrounded with liquid fat. After six or seven weeks, the meat thus preserved had been found as fresh as if only killed the same day. The plan was about to be officially tested in London, and Mr. Hutchinson said he would then communicate the result to the Society.

A Paper was afterwards read on "Art in relation to Social Life," by Mr. H. H. STATHAM, Jun.*

* See page 93.

FOURTH ORDINARY MEETING.

ROYAL INSTITUTION, November 28th, 1870.

J. BIRKBECK NEVINS, M.D., PRESIDENT, in the Chair.

Ladies were invited to the meeting, and there was a large attendance.

Mr. ALFRED HIGGINSON, M.R.C.S., Vice-President, who occupied the chair at the commencement of the meeting, opened the proceedings by alluding to the distressing event which had so suddenly deprived the Society of the services of its valued and highly-esteemed hon. librarian, Mr. Christian Flück, and suggested that a vote of sympathy and condolence with his widow, under the grievous trial she was called upon to bear, should form a part of their business that evening.

Mr. PICTON then, in very feeling and complimentary terms, proposed that the following resolution should be recorded in the minutes of the Society's proceedings, and conveyed to Mrs. Flück:—"That this Society desires to place on record the great estimation in which the character of the late Mr. Flück, Honorary Librarian, was held by the members; and that this opinion be conveyed to his widow, with an expression of their condolence and sympathy with her, under the melancholy circumstances which have caused her bereavement."

The motion was seconded by Mr. UNWIN, and carried unanimously.*

Mr. THOMAS PHILIP exhibited two instruments, of Ameri-

* Mr. Flück was barbarously murdered, while asleep in his private sitting-room, on the afternoon of Friday, 25th November. The assassin has not yet been discovered.

can invention, for the illustration of astronomical phenomena in schools. The first, called a heliotellus, exhibited the motions, &c., of the sun and inferior planets; and the second, named a lunatellus, illustrated the relative motions of the sun, earth and moon. Both instruments were much admired.

The HON. SECRETARY read letters of acknowledgment from Professors Huxley and Tyndall, Sir John Lubbock, and other gentlemen, who had recently been elected honorary members of the Society.

Dr. INMAN then proceeded to read a Paper on the "History of the Alphabet,"* which was followed by a very interesting discussion, in which Messrs. Newton, Kennedy-Moore, Picton, Swainson, Jones, Buxton, and others took part. As the time did not allow of all who were desirous to speak on the subject, the discussion was adjourned to the next meeting.

FIFTH ORDINARY MEETING.

ROYAL INSTITUTION, December 12th, 1870.

J. BIRKBECK NEVINS, M.D., PRESIDENT, in the Chair.

Dr. Rickard was unanimously elected an ordinary member.

A communication was received from the Council, stating that Mr. Alfred Morgan had been appointed honorary librarian, in the place of the late Mr. Christian Flück.

Mr. PICTON called attention to the mode in which the discussions were conducted, and moved the following resolution:—"That no speaker, in the discussion of any

* See page 191.

Paper read during the evening, be allowed more than ten minutes."

The motion was seconded by Dr. WHITTLE, and agreed to unanimously.

The HON. SECRETARY read a letter of acknowledgment from Professor Wyville Thompson, on his election as an honorary member.

Mr. MORTON, F.G.S., exhibited some splendid specimens of *Lonsdalia floriformis* and *Lithostrotion Portlochi*, from the mountain limestone at Mold; also, another coral, *Alveolites septosa*, from the same place; and some other fossils. The corals are so abundant in certain strata near Mold, that the term "Coralline zone" might be appropriately applied to the locality.

The discussion on Dr. INMAN's Paper, read at the last meeting, was then resumed;

After which Mr. W. K. KENT read a very lively and interesting account of his journey through the Peninsula of Kattiawar, in Northwestern India.*

SIXTH ORDINARY MEETING.

ROYAL INSTITUTION, January 9th, 1871.

J. BIRKBECK NEVINS, M.D., PRESIDENT, in the Chair.

Messrs. G. W. Rawlins and John Patterson were unanimously elected ordinary members.

Mr. MOORE exhibited a fine stuffed specimen and skeleton of the African Ant-eater, Aard Vark, or Earth Hog (*Orycteropus capensis*), specially obtained from Natal by Mr. A. C. Stewart, and presented by him to the Free Museum; also various skulls, &c., in illustration of the

* See p. 235.

same. He also exhibited three remarkable fish vertebræ, lately presented to the Museum by Mr. Thomas Gibson. These vertebræ are of large size, and interlocked so as to prevent any upward or downward motion. They appear to belong to a large specimen of the Tunny tribe.

Mr. Consul HUTCHINSON then read a Paper on "Our Meat Supply from Abroad,"* which was followed by a discussion of unusual interest, in which Messrs. Davies, Picton, Rickard, Higginson, and others took part.

SEVENTH ORDINARY MEETING.

ROYAL INSTITUTION, January 23rd, 1871.

J. BIRKBECK NEVINS, M.D., PRESIDENT, in the Chair.

Mr. PICTON called attention to the abstract of a Lecture upon Water, by Professor Tyndall, reported in the papers of that day, which gave rise to some discussion upon the supply of water for sanitary and domestic purposes, and the results of Clarke's process for purifying and softening water.

Mr. MOTT brought under notice the new asphalte roadway in London, and exhibited specimens of the rock from which the asphalte is made, as well as of the pavement itself.

Dr. INMAN next made some observations upon Malaria, and the experiments upon intermittent fevers supposed to be derived therefrom, as described in Dr. Oldham's work on this subject.

Mr. Consul HUTCHINSON narrated his experiences in this respect, in Western Africa and South America, which inclined him to differ from the theory set forth in the above

* See page 63.

work, viz., that the fevers were not necessarily connected with malaria, but were due to sudden changes of animal heat, caused by sudden fluctuations in atmospheric temperature.

Dr. NEVINS then introduced the subject of the Plumage of Birds, and read a short Paper explanatory of Wallace's theory on this subject. The Paper was illustrated with an extensive collection of stuffed specimens of birds, brought from the Free Museum by Mr. T. J. Moore, and arranged by him.

EIGHTH ORDINARY MEETING.

ROYAL INSTITUTION, February 6th, 1871.

J. BIRKBECK NEVINS, M.D., PRESIDENT, in the Chair.

Mr. R. C. JOHNSON, made the following communication:—"On Monday night, 9th January last, at 10 hr. 10 m. p.m., while engaged in my observatory, I was startled by the reflection of a brilliant light, which came from a splendid cluster of meteors, which rapidly crossed the constellation of Orion, half-way between the belt and the shoulders. I only saw the end of its light; but from the observation of a gentleman at Wolverhampton, who saw it pass through Cassiopeia into Andromeda, it must have passed very near to the earth, probably within thirty miles of its surface. It left a broad faint train, that remained visible for a few seconds. I estimate its light at about twice that of the moon, which was then shining brightly, and was three days full."

Mr. Consul HUTCHINSON then read a short Paper upon "Some Incidents of the Paraguayan War,"* which he illus-

* See page 79.

trated with an extensive series of photographs, articles of curiosity, &c.

A Paper on "Our Universities"* followed, by the Rev. J. A. M'MULLEN, M.A., which elicited considerable discussion, in which Messrs. Inman, Kennedy-Moore, Newton, Birchall, Smith, and others took part.

NINTH ORDINARY MEETING.

ROYAL INSTITUTION, February 20th, 1871.

J. BIRKBECK NEVINS, M.D., PRESIDENT, in the Chair.

Messrs. Highfield, Mason, Footner, C.E., and Pendlebury, B.A. Cantab., were balloted for, and duly elected ordinary members.

Mr. WALTHEW called attention to the reports in the *Times* and other newspapers of a large meteor having been seen in the daytime at Gairloch, West Ross-shire, and stated that he had made enquiries from friends in the neighbourhood, who fully substantiated the reports.

Some conversation then ensued upon the possibility of meteors being seen during broad daylight, and considerable evidence in support of this was given by Messrs. R. C. Johnson, Rickard, Higgins, and others.

An able and exhaustive Paper was then read by Mr. ALBERT JULIUS MOTT, on "The Meaning of the word Force,"† which was followed by the customary discussion, in which Messrs. Brown, Picton, Drysdale, Kennedy-Moore, Statham, and others took part.

* See page 171.

† See page 123.

TENTH ORDINARY MEETING.

ROYAL INSTITUTION, March 6th, 1871.

J. BIRKBECK NEVINS, M.D., PRESIDENT, in the Chair.

Ladies were invited to the meeting, and the attendance of members and their friends was unusually large.

Mr. T. J. MOORE exhibited several new additions to the Natural History Department of the Museum, made by Captain Perry, Associate of this Society.

Mr. BIRCHALL then read a Paper on "French Frontiers,"* which was illustrated with a series of nine large maps, reduced copies of which are inserted in the present volume.

ELEVENTH ORDINARY MEETING.

ROYAL INSTITUTION, March 20th, 1871.

J. BIRKBECK NEVINS, M.D., PRESIDENT, in the Chair.

Mr. J. T. MOORE exhibited a large mass of living Barnacles attached to a corked but empty brandy bottle, which was found on the 16th instant floating in the sea, seven miles N.N.W. of Priestholme Island, near Beaumaris, by Captain Edwards, No. 7 pilot schooner *Lancashire Witch*, and by him presented to the Free Museum, where they will be kept alive as long as possible in one of the large aquaria. These barnacles are usually found on floating timber, and also on ship's bottoms, from which it is very difficult to keep them. A vitreous coating, such as has been proposed by some, is proved by this instance of their adherence to glass

* See page 241.

itself to be by no means an efficacious remedy. This instance confirms the statement by Darwin, in his *Mono-graph of the Cirripedia*, that they attach to bottles as well as to timber and ships. Captain Edwards, who was present, detailed the circumstances under which the specimens had been caught.

Dr. WHITTLE described a peculiar pale appearance which he had observed in the planet Mars during the last week, and several other gentlemen gave some details of the recent shock of earthquake felt in this neighbourhood.

Mr. B. L. BENAS then read a short but interesting Paper on "The Theory of Currency."

An animated discussion followed, maintained chiefly by Messrs. Picton, Patterson, Commins, and Mott.

TWELFTH ORDINARY MEETING.

ROYAL INSTITUTION, April 3rd, 1871.

J. BIRKBECK NEVINS, M.D., PRESIDENT, in the Chair.

A Memorial, which had been drawn up by the Council, was read, calling the attention of the Mayor and Council of the Borough to the dilapidated condition of the conservatories in the Botanic Gardens, and requesting that they should be put in such a state of repair as would ensure the preservation of the valuable collection of plants contained in them.

The Rev. H. H. HIGGINS paid a high compliment to the ability of the Curator, and observed that, during the late visit of the British Association, Dr. Hooker, and other eminent naturalists, had expressed very high opinions of the collection, particularly that of the ferns, which was the most

complete in species of any in Europe. He moved that the memorial be adopted.

Mr. J. A. PICTON seconded the motion, and gave an interesting account of the gardens during the time that they were located in Mount Pleasant, and since they had been removed to their present site.

The memorial was then unanimously adopted, and the President authorised to sign it on behalf of the Society.

Mr. HIGGINSON exhibited the fruit of *Aucuba Japonica*, only of late years produced in this country. The female plant has been long naturalised as a hardy shrub in our gardens, but the Japanese would not allow the male, or stamiferous, plant to leave Japan. It has now been introduced, and the fruit is a beautiful berry containing one seed. The time of flowering of the pistiliferous is earlier than the stamiferous shrub, so that the pollen has to be collected and applied to the stigma.

The Rev. Alexander Gordon, M.A., then read a Paper, entitled "A Pythagorean of the Seventeenth Century,"* which was followed by a discussion in which Messrs. Picton, Higgins, Kennedy-Moore, &c., took part.

THIRTEENTH ORDINARY MEETING.

ROYAL INSTITUTION, April 17th, 1871.

J. BIRKBECK NEVINS, M.D., PRESIDENT, in the Chair.

Ladies were invited to attend this meeting.

Mr. ALFRED E. FLETCHER, H.M. Inspector of Alkali Works for the Western District, exhibited a Rhysimeter, and made the following communication respecting it :—

During last Session I had the pleasure of describing to the Society an Anemometer of novel construction. It indicated

See page 277.

the speed of a current of air by measuring the statical pressures conveyed through two tubes exposed to it. I have now applied the same principle, with the necessary modifications, to measuring the speed of a current of water, or the speed of a ship through the water.

The instrument is called the Rhysimeter, or Stream-measurer. *ρύσις* a flowing, *μετρον* a measure. Its application is as follows :—

A straight tube is placed in the current whose velocity is to be measured, and held in a plane perpendicular to the direction of motion, so that the water flows across the open end of the pipe. This induces a tendency in the water of the pipe to flow out, and so causes a partial vacuum in it.

At the same time another tube, whose end has been bent round through an angle of 90° , is held parallel to the straight tube in such a position that the bent end faces the current. In this the lateral induction is neutralised by the pressure of the current. The difference between the pressures exerted in the two tubes by the action of the flowing liquid is made a measure of its velocity.

In order to accomplish this the tubes which dip into the stream are continued upwards till their ends are on a level with the eye of the observer. These ends are of glass. They are united at the top so as to form in fact one tube, bent in the shape of an inverted U. At the top of the bend, that is, in the centre of this bridge-piece, is a small exhausting syringe or pump. By means of this a partial vacuum can be formed in both of the long tubes whose ends dip into the running water, and the water be made to rise through them into the glass tubes at the top, which form the indicator of the instrument. The water is made to rise so far as to fill but partially the parallel glass tubes of the indicator, in order that a comparison may be made of the heights of the columns. If the terminal tubes below dip

into still water, the heights of the columns will be equal, as they are held up by the same pressure; nor will it signify if one of them is further immersed in the water, for their upper ends are connected with the bridge-piece already mentioned. But if there is motion in the liquid into which the terminal tubes dip a difference of height will be observed. The amount of this difference can be measured by a conveniently divided scale, and from it the speed of the current be known.

It is interesting now to observe that the mathematical formulæ which were deduced to show the relation between the speed of the current of air, and the difference between the heights of the columns of ether in the indicator of the anemometer, apply correctly also to show the relation there is between the speed of the current of water, and the difference of the heights of the columns of water in the indicator of the rhyssimeter.

$$\text{In the formula } v = \sqrt{p \cdot g \frac{W}{w}}$$

v will now be the velocity of the water in feet per second.

g = gravity = 32.18 feet per second.

w = weight of a cubic foot of water at 60° Fahr.

p = difference between the heights of the columns of water driven up the tubes measured in inches.

W = weight in lbs. of $\frac{1}{12}$ cubic foot of water.

$$\text{The formula becomes } v = \sqrt{p \cdot \frac{32.18}{12}}$$

$$v = \sqrt{p \times 1.638}.$$

To test the correctness of this by experiment, a steadily flowing stream was selected. The speed taken by the motion of a body floating on it was found to be 1 foot per second. The difference of the height of the water columns was 0.375 inch. According to the formula the speed would have been 1.003 feet per second. This close agreement, between the

results of experiment and of calculation, proves the correctness of the calculations, not only as regards the rhyssimeter, but as regards the anemometer also.

When the speed of the water or other flowing liquid is so great as to make the difference between the heights of the columns in the indicator inconveniently long, it is easy to introduce a syphon containing mercury. In this the motion will be less in proportion as its specific gravity is greater.

TABLE SHOWING THE SPEED OF CURRENTS OF WATER AS INDICATED BY THE RHYSIMETER.

$$v = \sqrt{p \times 1.638.}$$

Height of Water- Column. Inches.	Speed of Current. Feet per Second.	Height of Water- Column. Inches.	Speed of Current. Feet per Second.	Height of Water- Column. Inches.	Speed of Current. Feet per Second.
0.01	0.1638	0.22	0.7681	0.43	1.074
0.02	0.2316	0.23	0.7853	0.44	1.086
0.03	0.2836	0.24	0.8023	0.45	1.098
0.04	0.3275	0.25	0.8188	0.46	1.111
0.05	0.3662	0.26	0.8351	0.47	1.123
0.06	0.4012	0.27	0.8509	0.48	1.134
0.07	0.4333	0.28	0.8666	0.49	1.147
0.08	0.4632	0.29	0.8818	0.50	1.158
0.09	0.4912	0.30	0.8980	0.55	1.214
0.10	0.5178	0.31	0.9118	0.60	1.269
0.11	0.5431	0.32	0.9263	0.65	1.320
0.12	0.5672	0.33	0.9407	0.70	1.371
0.13	0.5904	0.34	0.9549	0.75	1.418
0.14	0.6128	0.35	0.9688	0.80	1.465
0.15	0.6343	0.36	0.9825	0.85	1.510
0.16	0.6550	0.37	0.9961	0.90	1.556
0.17	0.6751	0.38	1.009	0.95	1.596
0.18	0.6948	0.39	1.023	1.00	1.638
0.19	0.7139	0.40	1.035	1.1	1.718
0.20	0.7323	0.41	1.048	1.2	1.794
0.21	0.7504	0.42	1.061	1.3	1.867

Height of Water- Column. Inches.	Speed of Current. Feet per Second.	Height of Water- Column. Inches.	Speed of Current. Feet per Second.	Height of Water- Column. Inches.	Speed of Current. Feet per Second.
1.4	1.937	4.3	3.396	7.2	4.394
1.5	2.005	4.4	3.436	7.3	4.424
1.6	2.071	4.5	3.473	7.4	4.454
1.7	2.135	4.6	3.513	7.5	4.485
1.8	2.198	4.7	3.550	7.6	4.514
1.9	2.257	4.8	3.588	7.7	4.544
2.0	2.316	4.9	3.624	7.8	4.573
2.1	2.373	5.0	3.663	7.9	4.603
2.2	2.429	5.1	3.698	8.0	4.632
2.3	2.484	5.2	3.735	8.1	4.561
2.4	2.537	5.3	3.770	8.2	4.689
2.5	2.589	5.4	3.806	8.3	5.718
2.6	2.640	5.5	3.841	8.4	4.746
2.7	2.691	5.6	3.876	8.5	4.774
2.8	2.740	5.7	3.910	8.6	4.802
2.9	2.789	5.8	3.944	8.7	4.830
3.0	2.836	5.9	3.978	8.8	4.858
3.1	2.883	6.0	4.012	8.9	4.885
3.2	2.929	6.1	4.044	9.0	4.912
3.3	2.975	6.2	4.078	9.1	4.940
3.4	3.020	6.3	4.111	9.2	4.967
3.5	3.064	6.4	4.143	9.3	4.995
3.6	3.108	6.5	4.176	9.4	5.021
3.7	3.150	6.6	4.207	9.5	5.048
3.8	3.193	6.7	4.239	9.6	5.074
3.9	3.234	6.8	4.271	9.7	5.100
4.0	3.275	6.9	4.302	9.8	5.126
4.1	3.316	7.0	4.333	9.9	5.152
4.2	3.356	7.1	4.364		

Mr. WILLIAM BLOOD then read a Paper on "Schools and Teachers for the Poor." Taking a liberal view of popular education, Mr. Blood expressed his opinion that a system which merely aimed at fitting the children of the poor to discharge the duties of the station in which they were born was deficient. The objects of education from his point of

view were threefold, viz., to cultivate the faculties of those who are fitted by their natural endowments to rise; to fit those who must remain in a humble position to discharge the duties of their low estate; and to provide for both these classes the means of instruction and discipline necessary to prepare them for eternity. In the secular branch of education he included as essential studies, in addition to reading, writing, and arithmetic, those of elementary science, natural history, natural philosophy, and history, as being intimately associated with the departments of industry pursued by the operative classes; and with regard to religion, he urged that those points of theology which were matters of common agreement amongst Christians might safely be entrusted to school teachers.

INAUGURAL ADDRESS.

By J. BIRKBECK NEVINS, M.D. LOND., PRESIDENT.

THE Meeting of the British Association has been so recent, and the subjects discussed at it are still so fresh in our thoughts, that I shall not on this occasion attempt any *resumé* of its proceedings; but I shall endeavour to supplement one portion of the President's address, which he left in a partially unfinished state, by bringing before you the researches conducted by Dr. Burdon Sanderson, to which Professor Huxley referred, as having been sent to him just before the delivery of his address.

These researches are contained in the Blue Book just issued by the Medical Officer of the Privy Council; and, although they may appear to some of you as bearing chiefly on medical topics, I trust that you will not find them devoid of general interest, since they relate to a subject,—viz., the nature, the spread, and the prevention of contagion,—which, with such a human death rate as Liverpool always presents, and such a cattle death rate as lately prevailed throughout England, cannot but affect us all, whether we be specially devoted to medical studies or not.

The topics most actively discussed during the recent Meeting of Philosophers in the town were unquestionably the origin and propagation of life; and the best means for removing, or rendering harmless, if not even beneficial, the amount of sewerage which is now such a burden upon the community,

and which clings, like the Old Man of the Woods, around our necks, in spite of all our endeavours to get rid of it.

With the last question, however, we have nothing to do this evening; and the investigations of Dr. Sanderson do not enter upon the disputed question of the origin of life. The existence of contagion, whatever may be its origin, is assumed as an acknowledged fact, and the enquiry is therefore limited to the questions —

What is its nature ?

How is it propagated ?

Are there any means by which we can recognize its presence in the atmosphere ? and

Are there any means by which we can exclude it, or check its further extension ?

The contagious diseases which have been investigated, and which I propose now to bring before you, are

Cow-pox, or the vaccine disease,

Small-pox in man,

Small-pox in sheep, and

Farcy in cattle generally ;

And the results, in some important respects, are different from what is generally imagined, whilst the experiments by which these results have been obtained are interesting from their difficulty and delicacy.

Since cow-pox is generally, perhaps we may say always, communicated by means of the introduction of a fluid into the system, and the more limpid and transparent the fluid the greater is its efficacy in producing the disease, it was natural to think that its active principle was a fluid. And since small-pox is communicated to persons at a distance from the diseased sufferer, it was also natural to think that the contagious or active principle was capable of assuming the condition of vapour ; and it is a matter of interest, and also of some surprise, to find that the active principle in both

these diseases, as well as in sheep-pox and in farcy,—the contagious diseases that have been most carefully investigated,—is an organic living body, insoluble in water or in watery fluids, and incapable, without decomposition, of assuming the condition of vapour, though it may be dried up, and in this state be diffused through the air in the form of impalpable powder.

The difficulty of isolating the active contagious principle (the *contagium*, as it is technically called in Dr. Sanderson's report) was very great, for it is so perfectly diffused through the infectious liquid as not to interfere with its transparency. There is no difference in its refractive powers upon light, so as to indicate its presence in the liquid. The most careful experiments shew that it neither rises nor falls from any difference of specific gravity, so as to admit of detection or separation in this way. Nor is it capable of being separated by filtration. But all these difficulties have been overcome; and it is now established that the *contagium* in each of these diseases, and therefore not improbably in others also, is an organic body, of a fungoid nature, which is diffused through the infectious liquid, without being either soluble or capable of conversion into liquid.

The analysis of vaccine matter was the most difficult because of the small quantity in which it can be obtained, a few drops at a time only being available, and these contained in capillary glass tubes.

When the transparent vaccine liquid is placed under a high power of the microscope, it is found to contain a very small and variable number of particles, more or less resembling pus, which are sometimes altogether absent, and may therefore safely be considered accidental; as their presence or absence does not affect the peculiar powers of the vaccine lymph, and when used by themselves they have always failed to produce the cow-pock. It also contains a larger number of

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very minute particles, not more than $\frac{1}{10000}$ of an inch in diameter ; and the rest is a transparent albuminous fluid. The question to be decided was, which of these is the contagious ingredient ; and this could only be settled by separating them one from the other, and introducing them separately into the body, to observe the results. But, as already mentioned, the difficulty was how to separate them, since filtration was out of the question for a few drops of vaccine fluid. The object was, however, at length attained by "tube diffusion." The vaccine fluid was very carefully introduced into the bottom of a tube, about $\frac{1}{8}$ of an inch in diameter, and distilled water was placed above it. In twenty-four hours it was found that the upper layer of water contained saline ingredients and albumen, showing that the whole of the diffusible constituents of the fluid had passed into the water, though it did not contain any of these microscopical particles. A number of children were then vaccinated with the watery fluid, and it was found that less than one in eleven punctures took effect ; whilst in the same children, when vaccinated with the same vaccine matter undiffused, more than nine out of every eleven took effect. And since it might be thought that the simple dilution with the water prevented the effect from being produced, the contents of the tube were stirred up after the removal of the superficial layer of water, and the result was successful vaccination in eight and a half cases out of every eleven, or nearly as many as when ordinary undiluted lymph was used. In another set of experiments the layers of fluid were removed by nine capillary tubes in succession ; and whilst eighteen vaccinations performed with the first six tubes were entirely without effect, three out of five were successful when performed with the ninth tube, which contained the microscopical particles undiffusible through the water ; a most convincing proof that it is these organic fungoid-looking bodies which constitute the contagious or active

principle of the vaccine matter. It would weary you to describe in detail the experiments tried with small-pox, sheep-pox, and glanders, or farcy virus. It is sufficient to say that the saline and other diffusible constituents were separated from the microscopical fungoid particles of the virus in the manner above described; and that inoculations with the watery solution were inoperative, whilst inoculations with the lower undiffusible layers of the fluid were followed by the characteristic disease in nearly every case.

In connection with these experiments, it is interesting to remark that M. Chauveau, by whom most of them were performed, has proved experimentally that vaccine matter may be diluted with ten times its volume of water without losing its effect; and when the contagious liquid of sheep-pox was diluted with five hundred times its volume of water, thirteen enormous pustules still resulted from twenty-one punctures; and even when diluted with ten thousand times as much water, a single pustule, which resulted from twenty punctures, was the starting point for a general attack of the disease in the sheep inoculated.

The facts above mentioned afford a rational explanation of a circumstance sometimes noticed, but hitherto difficult of interpretation, viz., how it happens that a person shall be exposed for months to the contagion of typhus with impunity, but shall at length fall a victim to it. The answer now appears to be, that the *contagium* is not a gaseous body (for in that case it would be equally diffused through the air, and the person would be inhaling it all the time), but that it consists of these microscopical particles, which are unequally diffused like dust through the air, and therefore the person may for twelve months have inhaled none of them, and at the end of this time inhale some, which at once put an end to his period of immunity. Just as it has been observed, that when the contagious fluids we have been considering are mixed with

water, the failures by inoculation increase in proportion to the amount of dilution, because many will be performed without any of the contagious particles happening to be in the drops of fluid used. Whilst pocks are produced of the ordinary character, when inoculation does happen to take, in consequence of some of the particles being present in the fluid employed.

The next portion of the enquiry is whether these microscopical particles are independent living bodies, having a characteristic appearance and mode of growth; or whether they are merely resident in the diseased living body. This subject has been more carefully studied by Professor Hallier, of Jena, than by any one else, and the general result of his observations may be stated as follows:—

Most contagious fluids contain minute organisms, to which the general title of Microzymes has been given; and they are capable of development in various ways; sometimes becoming elongated and assuming the character of Bacteridia, and at other times (according to the substances with which they come in contact) assuming the character of nucleated cells, joined together like a string of beads.

He has given distinctive names to these modes of growth, viz., *Cryptococcus* when they are circular nucleated cells, and *Arthrocooccus*, when they assume an elongated and jointed form.

These microzymes are found in many, perhaps most contagious liquids; but those in which he has demonstrated their presence are vaccine, small-pox, sheep-pox, farcy, common diarrhoea,—in which he found numerous moving and also motionless micrococci or mycrozymes,—and the liquid discharge of dysentery and cholera. In recurrent fever he found them in the blood. In measles, in the saliva. In scarlet fever, in the blood, in extraordinary numbers; “there

is indeed no disease in which they are so abundant." He found them also in the blood in constitutional syphilis ; and in the discharge of gonorrhœa and soft chancres ; but he admits that there is no specific distinction to be observed in their form or appearance, as actually seen in these contagious fluids. If therefore they are capable of reproducing the diseases with which they are associated, the characteristic differences appear only during their development in the living body. But upon this point, all that we know at present is that vaccine microzymes introduced into the body produce a multiplication of microzymes not differing in appearance from the original ones. And the same thing may be said of small-pox, sheep-pox, and farcy. We are without detailed experiments showing that the inoculation of measles' sputa will produce this disease, or that the inoculation of scarlet fever blood will produce the excessively abundant microzymes he speaks of, though we can easily believe that such may be the case.

Professor Hallier has recorded a series of experiments, in which he placed the liquids evacuated from cholera patients upon rice and cooked beef, and exposed them to temperatures varying from 60° F. to 100° F., and the result was a fungoid growth upon the rice somewhat resembling the smut upon wheat, but totally different in character from the microzymes observed in the cholera liquid itself ; and a yellowish brown offensive mass of microzymes upon the meat, closely resembling those of the cholera fluid. But the experiments were conducted without the necessary precautions for excluding extraneous atmospheric influences, and are therefore inconclusive upon the subject, and fail to establish his theory that cholera is capable of being introduced by rice which has become diseased from being grown in soil containing cholera alvine excretions.

The conclusions which appear to be established from the facts above recorded are—

That contagious matters, when capable of being examined, contain bodies which resemble in appearance the lowest forms of fungoid growths, to which the term of Microzymes has been applied; and that these bodies are neither volatile, in the chemical sense of the term, nor soluble in water.—

That, when introduced into the system, they are followed by diseases of a special character, and result in the enormous multiplication of the microzymes.—

That these microzymes, as obtained from different contagious fluids, exhibit no specific difference under the microscope, and therefore our hope of detecting them or recognizing them in the air is very small at present.—

That their size is so minute as to admit of their being readily diffused through the air; and that the experiments of Tyndall shew that reflecting particles are present in the air in innumerable quantity, even below microscopical dimensions.—

And, whilst the probability is strengthened that all contagious diseases may take their origin from microzymes diffused through the atmosphere, experimental proof of it is still wanting.

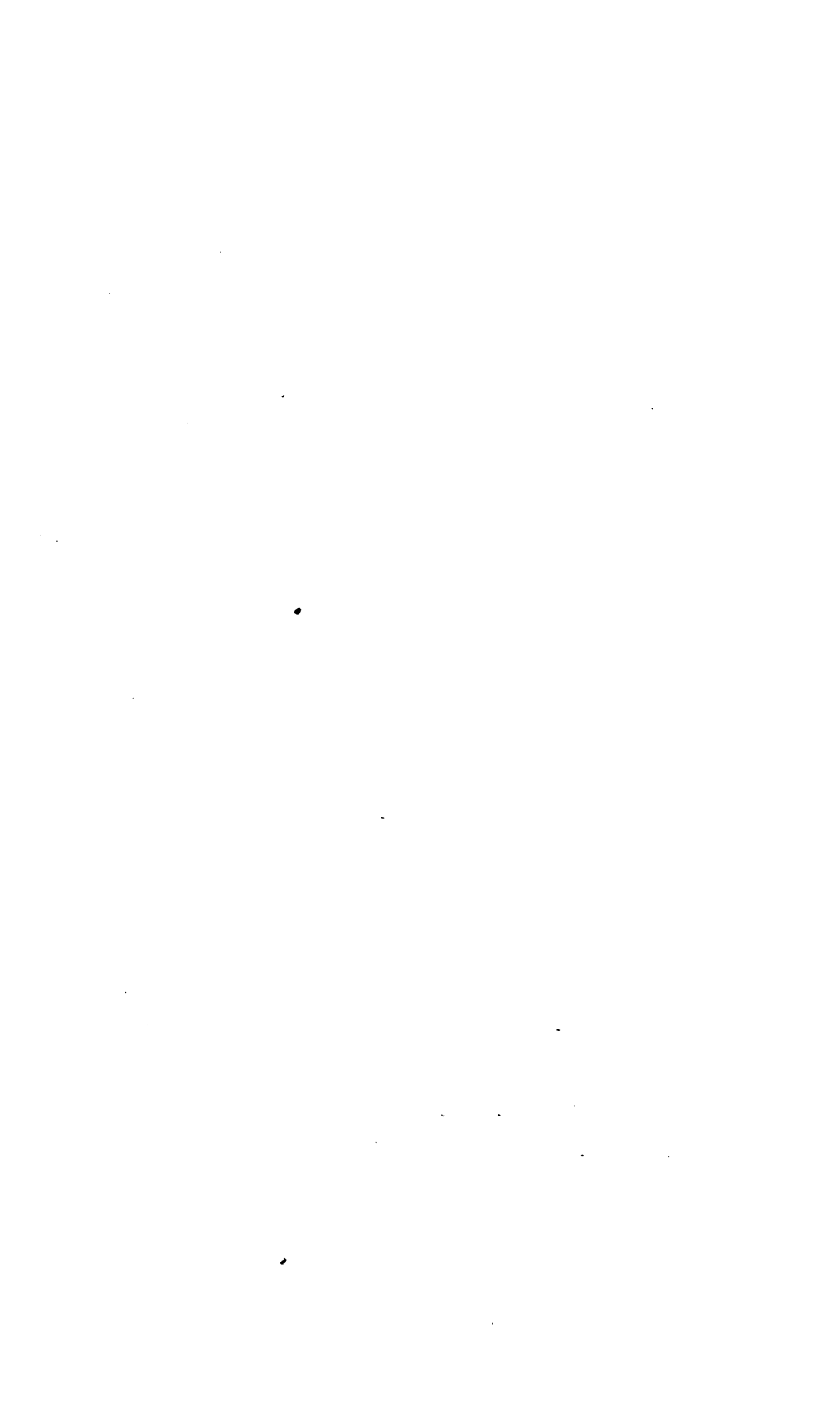
We have as yet no experimental proof of any means by which the propagation can be prevented of microzymes, of whose very existence indeed there are doubts; but since those which we do know to exist can be indefinitely diluted by diffusion through the air, common sense will dictate the necessity and advantage of free ventilation in the presence of contagious or infectious disease. And as Tyndall has taught us the influence of such a heat as that of a spirit-lamp in destroying the reflecting particles diffused through the air, philosophy, as well as common sense, confirms the advantage, as well as the comfort, of a bright cheerful fire coupled with

this ventilation in the sick room. And as these microzymes are shewn to escape from the infected body by various outlets, other precautions are naturally indicated, which would, however, be dwelt upon more appropriately before a Medical, than before the Literary and Philosophical Society.

P.S.—Since this address was delivered, an important paper has been issued by Dr. Lewis, of the Army Medical Service, who was specially appointed by the Indian Government to prosecute inquiries into Hallier's theory of the fungoid origin of Cholera above mentioned, and the alleged connection between that disease and the products of the soil.

The questions to be investigated by Dr. Lewis were:—
1st. Are there such fungoid bodies in the choleraic discharges as seen in India? 2nd. What are they? And 3rd. Are they found under similar circumstances elsewhere? His conclusions are as follows:—1st. No "cysts" exist in choleraic discharges which are not found under other conditions. 2nd. Cysts or "sporangia" of fungi are but very rarely found under any circumstances in alvine discharges. 3rd. No special fungus has been developed in cholera stools; the fungus described by Hallier being certainly not confined to such stools. 4th. No sufficient evidence exists for considering that vibriones and such like organisms prevail to a greater extent in the discharges from persons affected with cholera, than in the discharges of other persons, diseased or healthy. 5th. But it is "not proven" that the vibriones, &c. (micrococcus) may not be peculiar in their nature, and may not be the product of a peculiar combination of circumstances, and able to give origin to peculiar phenomena in a predisposed person.

Condensed from a review on Dr. Lewis's paper, in the *British Medical Journal*, Nov. 12, 1870.



SPECULATIONS ON THE FORMER TOPOGRAPHY
OF LIVERPOOL AND ITS NEIGHBOURHOOD.—
PART III.

BY JOSEPH BOULT, F. R. I. B. A., &c.

A few years since I submitted through another Society* some topographical speculations based upon the etymology of place-names; and expressed a hope that others better qualified would correct the errors my papers contained; and explained that the task would not have been undertaken by me if it had been discharged by others. Unfortunately the hope has not been realised, and so it becomes my duty to correct some crude suggestions; and, in doing so, I take the opportunity to supply some omissions.

At the time the previous communications were prepared I was not aware that so many local names are ascribable to a period antecedent to the Saxon era, and consequently I did not seek for any explanation from the language of earlier settlers, for such reference as was made to the Welsh language was to a stage at any rate coeval with the Saxon, if not more recent. It is so usual to hear the Welsh people spoken of as ancient Britons that probably few will expect to hear of a people resident in this country of a lineage more remote, from whom the Welsh are merely an off-shoot or remnant; of language less pure and more modern. Yet the inquiry I have made seems to show that the names of many places, not only in this locality, but throughout Great Britain and Ireland, including the oldest and most acceptable of the several countries themselves, were bestowed by a people who

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preceded the Welsh, as we know them in the present day, or in history. That people no doubt were Celts also, at any rate kindred, yet as different from the Welsh as the Welsh differ from Anglicised residents in the Principality.

It would give this paper too wide a range to illustrate these remarks from the three kingdoms, but there can be little doubt that the names of Britannia, Albion, Albain, Lingria, Lloegria, Hibernia, Ireland, Scotland, and the two Monas, as well as those of many of the Roman provinces, and of the principal ancient towns, are essentially Celtic; the examples which will be submitted, from the names of places in this neighbourhood, will probably suffice to show that this opinion is well founded.

Beginning with Liverpool. On a previous occasion, following the lead of earlier enquirers, it was suggested that the name was Welsh or Saxon. The absence of the name from Domesday Book has produced an impression that the name originated subsequently to that date; but the premiss is not wide enough for the deduction, inasmuch as many names of date undoubtedly anterior to that of Domesday Book are also omitted. Observing that Camden quotes *Liferpol* as the form of the name known to the Anglo-Saxons, and being unable to trace that form to any satisfactory Anglo-Saxon root, I turned to the Celtic, and in Irish may be found *li* the sea, *feor* the brink, and *poll* a pool, the whole representing the *sea brink pool*; a name which conveys with exactness an ancient, as well as the more recent position of the old pool, so far as the former can be deduced from the latter. If it should ever be established, as has been variously conjectured, that the waters of what is now the Upper Mersey found their way to the sea through the river Dee, and that the space between Wallasey and Lancashire consisted of low land or marsh, which has been gradually eaten out and removed by the action of water, then it may be inferred that the pool was

named by the Celts after the sea had advanced so far inland.* The name of Warrington would seem to be allied to this; *C. feoran*, signifying land adjacent to a brook or river; the *ton* at the end of Warrington doubtless being a corruption of *C. dun*, a fortress or city; thus, *feorantun*, or, substituting *v* for single *f*, *veratinum*, denotes a place adjacent to the river, which aptly describes its relation to a part of the Mersey. Bromborough may be another such descriptive name, from A.-S. *brym*, the brink, and *burh*, a hill or city.

The form *Liverpool* is a natural modification of *Liferpol*, the *v* and single *f* being interchangeable letters; but *Leverpol* is a literal version for another Celtic word, which is almost a contracted synonym for *Liferpol*. *C. leabhair*, in which the aspirated *b* takes the sound of *v*, signifies margin; hence *Leverpol* is the margin-pool. And *Lerpool* has the same signification, in which the sound of *u* has been substituted for that of *v*; *Llyrpwl*, which seems so clearly to resemble it, is the Welsh form of *Liferpol*, *llyr*, according to Owen, signifying sea-brink. The name of *Litherpool* I suppose is A.-S., and descriptive of the old Moss lake, as explained in a former paper.

In *Otterspool* may be discerned another Celtic name, which appears in its proper form of *Otirpul*, in the *Coucher Book of Whalley*, and the *Perambulations of 12 Henry III.*, as part of the boundary of *Toxteth*; *otir*, signifies a headland, jutting into the sea; *oscelesbroke*, part of the same boundary, appears to denote a fall at the flowing of the tide, *i. e.*, *C. a scal*, flowing of the tide, and *eas*, cascade or waterfall; or, perhaps more probably, the stream above the wood, *i. e.*, *os*, above, *cuille*, wood, and *eas*, flowing water. If the former be accepted as correct, it would imply that the name was given

* See the *Liver*, in *Cornwall*, which falls into the estuary of the *Tamar*; *Livermead*, near *Torquay*; and *Liverton*, or *Leverton*, one near *Guisborough*, *York*, N.R.; the other near *Boston*.

after the estuary had been excavated as far as the headland at the mouth of the brook, and when, the level of the bed of the brook being unaltered, there would be at low tide a small cascade or fall from the brook; if the latter gloss be adopted, the name implies a wood above the junction through which the fresh water flowed into the tidal water.

The name Mersey is a phonetic representative of *C. murse*, a sea-marsh; which, I suppose, existed at the time Ptolemy's chart was prepared.

According to Jamieson, the word *merse* is used in Dumfriesshire to describe "ground gained from the sea, converted into moss;" perhaps, as he suggests, as having been originally under water; he derives the word from Teut. *merche*, *marse*, *palus*; but the abundance of Celtic names in this locality renders it probable that the application in Dumfriesshire is a modification of the original meaning of the term. Besides, in early documents, the Mersey is continually spoken of as *Brachium Maris*, an arm of the sea, which is confirmatory of the origin ascribed to this portion of the river.

Considering how very thinly Wirrall is likely to have been inhabited before the Anglo-Saxon period, it contains several Celtic names, some of which are very suggestive as to its early topography and history. The name of Wirrall, coupled with our information as to its early condition, appears to be from *C. uir*, a district, *ral* an oak tree, signifying therefore the oak-tree district. To derive it from *W. wyre*, a spreading, an expanse, and *halen*, water, involves a transposition from water to land such as I have not met with elsewhere. The name of Wyrewater, at Fleetwood, is no doubt derived from these words. An early name of the hundred of Wirral, was Wivalleston, which survives in that of the village and township of Willaston. Possibly from *C. uim*, a country, with a final aspirate, and *fal*, untilled, *es*, an ox, and *tun*, a place, denoting that the village was then in an

untilled, or uncultivated country, possibly pastoral, and therefore very suitable for grazing. In *fal* appears the root of the English word fallow. Parts of Wirral are still noted for numerous oak trees, some of which attain magnificent growth.

The distich,

From Blacon-point to Hilbree
A squirrel might leap from tree to tree;

or

From Birkenhead to Hilbree
A squirrel might leap from tree to tree;

is quite too modern in dress, as well as date, to be accepted as a correct indicator of the state of the district.

Liscard is apparently the same word as Liskeard, in Cornwall, which represents with great fidelity *C. lios* an enclosure, *ce* earth, and *ard* high; and therefore means the high, enclosed, or cultivated land. The name of Noctorum, which looks so like a piece of barbarous Latinity, should, no doubt, be enoctorham, that is, the A.-S. *ham*, village or homestead, appended to the *C. cnoc* nape, and *tor* hill, or *cnoc* hill and *tor* fort. In Domesday Book the same place appears under an earlier Celtic form of the the same topographical feature, namely, Chenotrie, *i. e.*, *ceann* head, and *otir* ridge jutting into or towards the sea; thus the top of the seaward ridge.

Tranmere, sometimes written Tranmol and Tranmul, looks like another pseudo Latin word; the first form probably being *C. trian*, W. *tran*, a district, and *C. mir*, a summit; in the second form, the final syllable being *C. mul*, W. *moel*, an eminence; these names would be appropriate to Higher Tranmere, and it is not unlikely that the uplands were first settled, and named, and that Lower Tranmere, and also Lower Bebington, derived their names as adjuncts.

The name of Wallasey, —the foreigners' isle— is Saxon

testimony to the Celtic origin of its inhabitants ; for they, like the Celts, and like uneducated people a few years since, called all alien to themselves foreigners, whether natives or not.

It is true that, on the authority of a village school-master named Robinson, the origin of the names of Liscard and Wallasey have been attributed to two persons called Lee and Walley. Of this Mr. Robinson nothing more is known, whilst of Lee and Walley nothing whatever is known, beyond Robinson's statement that there were in the parish two churches, called respectively Walley's Kirk and Lee's Kirk, and he conjectures that those names are derived from two men, a supposition which was excusable in one so ill-informed, and in his day, when difficult problems were solved by imaginative legends.

Dr. Ormerod does not attach any value to Robinson's statement, but says " Lee's Kirk must have been the chapel belonging to the Priory of Birkenhead ; Walley's Kirk is obviously a corruption of the name of the parish church, uniformly called *medietas rectoriæ de Kirkbye in Walleia* in the early Lichfield Registers," II. p. 262. Further, Sir Peter Leycester quotes a grant from Robert of Rhuddlan, to the Abbey of Utica, in Normandy, *inter alia*, of all the town, tithe, and Church of Kirkby, in Wirral, within the county of Chester, and of the Church of the Island ; and from a Charter of Confirmation, made 1081, by William the Conqueror, *dedit sancto Ebrulfo Cherchebiam cum duebus ecclesiis ; unam scilicet quæ in ipsâ Villâ est, et Aliam propè illum Manerium in insula maris* ; and remarks, " So that Kirkby with the two Churches, I conceive, is Kirkby in Wirral, within Cheshire, one church then standing within the said Town, and the other near thereunto in the Island of the Sea, which I conceive is meant of the Island now called Ilbree."

As there is not any evidence of a church on Hilbre island, the remains there indicating a cell only, it may be allowable to suggest that the two churches were West Kirkby and Kirkby in Walley, or Wallasey; a suggestion which is confirmed by the insular position of Wallasey at high water of spring tides, before those tides were excluded from the Leasowes by sandhills and embankments. Both livings are in the gift of the Dean and Chapter of Chester, that of West Kirkby from a very early period; and the two may have been originally medieties of one living. It is clear, at any rate, that Robinson's romance is entirely unsupported by any evidence, and is about as baseless a fabric as that other romance of a submarine graveyard, it has been revived to support.

The insular character of Wallasey suggests a Celtic root for the name of Birkenhead, which possibly was *burr ceann*, the sea-head. The dates when the coast of Wirral received the general features of its present conformation, and when Wirral was settled by the Celts are, and probably will remain, unassignable; but it appears probable that the settlement was after the physical change had attained the state which is partially recorded by history. Hilbre or Ilbre is almost identical with C. *ile-de-bre*, the island of the headland, or *oil-de-bre*, the rock of the headland, either of which describes the topographical feature with the customary pertinence and force to be observed in Celtic names.

It is true some monkish and other writers derive the name of the island from St. Hildeburgh, but I fear she, like many other personages, sacred and profane, including the before-mentioned Lee and Walley, is entirely mythical, and owes her existence, at any rate in this locality, to one of those frequent attempts to explain abstruse facts by an easy effort of the imagination, instead of by patient inquiries. A similar instance is to be found in

Cornwall, at Perranzabulo, where the church dedicated to St. Perran has been lost in the sands. Instead of owing its name to the saint, he owes existence as well as name to the place. Perranzabulo is so called from the position of the town in the days of the early Celtic settlers, which I believe is not much changed. It is probable the name originally was *pur-rann-sa-bul-lo*, that is the short, or abrupt, promontory in sandy water.

These eponymous legends are less illustrative of the scientific use of the imagination, than of imaginary Science.

In this little island, says Tanner (*i. e.*, Ilbre, Hilbury, or Holburgh), is said to have been a cell of Benedictine monks to Chester, which was dedicated to our Lady. He refers to King's *Vale Royal*, p. 1. p. 28, p. 11, and Willis, *Hist. of Abbeys*, vol. i., app. p. 66; vol. ii., app. p. 5; but makes a "Quære whether this might not be the hermitage mentioned in the Record Fin. 2 Edw. III. m. 2. thus, Cest. Hildburghey heremitagium percipit xs. per ann. de castro regis Cestriæ de antiqua eleemosyna." Leland in his *Itinerary*, in vol. v. p. 55, says, "there was a celle of monkes of Chestre, and a pilgrimage of our Lady of Hilbyri." Dugdale, *Mon.* vol. vi. p. 1616. There is here no record of a church.

The names of Hoyle-bank and Burbo-bank, assuming them to be Celtic, confirm the supposition that the existing conformation of the coast had taken place when that people dwelt here. Hoyle appears to be from the headland *oile-de-bre*, or from the island *ile-de-bre*; and Burbo to be *burr-bo*, *i. e.*, sea-cow; the latter not more far-fetched than those of the Calf, off the Isle of Man, and the Rat and the Sheep, off the coast of Pembroke.

In Bowdon, Bowland Forest, and the Bowstones on the hills which border Cheshire, Derbyshire, and Yorkshire, it is likely are other references to the cattle of the Celts; just as the Bowman of Scotch villages collected the cows of his

neighbours, took them out to graze in the morning, and brought them home at night.*

The Point of Ayr appears another indicator of the conformation of the coast when its name was conferred. According to Jameson, in Orkney and Shetland, *air* signifies sand. He does not assign it to any language, it may be related to C. *uir*, earth, clay, dust.

Judging from record, and fair inferences from the record, Hoyle Bank has passed through much alteration. The Dee, like most other streams, has had two channels to the sea; one along the Welsh coast, now, and for some centuries past, bearing the name of Chester water; the other to the eastward; between the two lay a delta of sand. This delta increased yearly, the principal causes of which appear to have been the large amount of silt brought down by the upland waters, the strength and earlier establishment of the tide through Chester water, and the prevailing winds. From the tidal establishment being earlier in Chester water, the flood would first make there, and would acquire strength before appearing in the eastern channel, which I will call Hoyle-lake, though probably it did not acquire that name until a comparatively recent period. This difference in the age of the flood would be accompanied by a phenomenon similar to that which I believe is still noticeable at New Brighton, where bathers in the young flood, in the Rock channel, near the Lighthouse, feel themselves carried seaward in the direction of Crosby channel.

* "And the Weaver was well to do, and had a cow, which his 'bit lassie,'—for he kept a girl to attend to them and him,—at early morning, when the well known horn filled the street with shrieks, delivered over to the *Bowman's* charge, receiving it again at nightfall, with the same unearthly noise. Mute is the Bowman's horn. He and it are things of the past; both were useful, nay important, in their day."—*Peasant Life; being Sketches of Villagers and Field Labourers in Glenaldie*, p. 258, Edinburgh, 1869. As surnames, we have Boden, Bolland, Bosley, Bostock, which, with the name of Boston in Lincolnshire, are perhaps all traceable to the C. name for cows.

It is manifest that such a meeting of portions of the same tide would prolong in Hoyle-lake the interval of slack water, at each turn of the tide; and that thus, in combination with the prevailing winds, the accretion of sand on the south-east side of the bank would be promoted; consequently Hoyle bank would gradually increase in breadth south-eastwardly, and so deflect the course of Hoyle lake. A spit or projection would thus be formed on the bank, and this spit would not only increase the deflection of the ebb, but would deflect the flood in the direction of the Rock point.

On the other hand, there can be little doubt that at some time undeterminable the water of Wallasey marsh, or leasowe, instead of passing into the Mersey, flowed direct into the sea between Wallasey and West Kirby, over the lowland containing at this day upwards of three thousand statute acres, below the level of high water. When the tide advanced into what is now called the Mersey, so far as the Birken or sea-head, it would gradually eat into Wallasey pool also, and, by forming an outfall at a lower level, as at low water, cause the stream through the pool to reverse its direction, and thus the lowlands before referred to, forming Bidston Marsh and the Leasowes, would be flooded at spring tides only. In the interval the sandhills would accumulate, and, gradually advancing from Kirkby towards Wallasey, in the direction of the prevailing winds, would enable the little township of Hoose to be formed of land reclaimed from the oozy bottom of the former mouth of the pool. Perhaps the connection between the pool and the sea, at spring tides, remained until a comparatively recent period, that is, until within the last two hundred and fifty years, as it is indicated on a map dated 1644.*

The township of Hoose is extra-parochial. Usually this

* In the collection of Thomas Dawson, Esq., M.R.C.S.

indicates that the place was formerly the property of the Sovereign, or of a Religious House. As Hoose does not appear to have occupied either position, it may have been reclaimed since the formation of parishes in Wirral, and considered of too little value to be claimed by either Kirkby or Wallasey, not having been included in the original parish, out of which those two are supposed to have been formed. The name of Hoose is from *W. wsg*, what separates, and this more modern Celtic name implies a more recent settlement.

The name of Gill-brook, formerly a branch of Wallasey pool on the Birkenhead side, is also Celtic, *gil* signifying water, and *gilaid* a little creek, which indicates what Gill-brook was, after the tide had deepened and enlarged Wallasey pool.

Whilst Wallasey pool discharged its waters into the sea, there would be a spit, or pseudo delta, between its mouth and the eastern channel of the Dee, and, judging from its name, Dove point, or spit, is its representative; Dove being derivable from *C. dubh*, signifying black. If the diversion of Wallasey pool coincided with the deflection of Hoyle lake, as is highly probable, the bias of the flood stream to trend from the Dee towards the Rock point would be increased, and thus the deflection of Hoyle lake would be rendered more rapid, until it attained the position assigned to it on Collins' chart; since that date its history has been one of simple shoaling and contracting, to its final extinction. Collins represents Hoyle sand as a very large and continuous bank; Fearon and Eyes, on their charts some seventy or eighty years later, show that a part of the waters of the Dee, unable to pass through Chester water, were cutting a more direct channel, called Hilbree swash, in preference to the tortuous course through Hoyle lake; subsequently this new channel appears as the Half-tide Swatchway, and then, as now, the Zebra Channel, from its parti-coloured buoys.

So long as the stream through Hoyle lake retained any strength, it counteracted the flow through the Horse or Hoose channel, and prevented it from wasting the coast; consequently it is not until within the last seventy or eighty years that there is the faintest record of any such waste. Thus it is physically impossible that the point of Wirral, that is ancient Meols, could ever have been subjected to any inroads from the sea of the slightest importance, except sand; a conclusion which to my mind receives abundant confirmation from the existing phenomena in that locality, including the so-called submarine forest.

In the Act of Parliament,* obtained in 1829, for the erection of the Wallasey Embankment, it is stated that it was required to prevent further encroachment of the sea, and the injury to arise therefrom to the lowlands contiguous, and to the port of Liverpool; and the preamble recites, "Whereas for sometime past the sea has made great encroachments upon the Leasowes in the townships of Wallasey and Great Meols, in the county of Chester, and such encroachments have within a late period very rapidly increased." This is scarcely appropriate language, if the waste has been going on for centuries; the promoters of a Bill for protecting the coast of Yorkshire or of Norfolk would scarcely have used such moderate expressions as "sometime past," and "within a late period."

There is a singular resemblance between the trees of this submarine forest and that Saint who, after martyrdom, walked about with his head under his arm; the stems of trees are found beneath upright butts, so that the latter must have raised themselves, and placed their amputated limbs underneath.†

I have not found any traces of that marvellous commerce

* 10 Geo. IV., c. xvi.

† *Observations on the Geology of the Cheshire Coast, and the so-called Submarine Forest beds*; by Charles Potter, *Trans. Lpool. Geo. Soc.*, 1868-9.

which has been attributed to Meols and Formby; on the contrary, I infer that in the time of the Roman occupation the seaboard from the Dee to the Ribble was in the sole occupation of the Celtic inhabitants; that it was, in fact, like the mountains of Wales and of Cumberland, a camp of refuge from the invaders. There seems little doubt now that the *Seteia Æstuarium* and the *Belisama Æstuarium* of Ptolemy represent the mouths of the Dee and the Ribble; on each of the rivers which fall into those estuaries was a position of great importance, in which were maritime transactions; but on the Mersey there is no trace of anything of the kind; it does not appear there was any commerce or navy at Wilderspool, therefore, the course of the Mersey was not of any importance to the Romans, even if that river had any independent navigable connexion with the sea; but a knowledge of the courses of the Dee and Ribble was important. It is to be observed that the designation of the two estuaries as given by Ptolemy is adjectival; the form is not the genitive but the nominative. In English these estuaries are styled of the Dee and of the Ribble; but it is not so with Ptolemy; therefore I apprehend that the names *Seteia* and *Belisama* belong to the estuaries alone, and do not extend to the rivers. The name *Belisama* appears to be derived from *C. beal-is-am*, literally the sands under water, or, the sandbanks on the coast under water;* a description which probably would apply to the site of the present estuary of the Mersey, as well as to that of the Ribble. It is not unlikely

* *beal* = sandbanks on the coast.

is = under.

am = ocean, or water.

Fcoirin = A sandy place on the sea-shore. May not this be the origin of Formby, the suffix being added by the Danes? The name was formerly sometimes spelled Ferneby, the diphthong *eo* taking the sound of *eo* in yeoman; and *n* before *b* has a tendency to become *m*. Thus the compound Celtic and Danish name would be pronounced Föörimby, which would naturally be contracted into Formby. Another form of the same room is *forna*.

that this estuary was intersected by numerous streams, of which the Ribble, the Douglas, the Alt, and the Mersey are the principal representatives; but these included the waters of other streams, which have been intercepted by natural or artificial operations. In the Mersey, for example, on the eastern bank there were Otirpul, Stirpul, Liferpul, Beacon's Gutter, Landpol, Rimrose Brook, besides some others, whose names are unknown or lost. Some of these, no doubt, united their streams before they reached the estuary or bay, but still it is highly probable that the streams were numerous, and formed many islets; besides which the tide would be forming continually new inlets, to be abandoned in favour of others. The coast would therefore present the appearance of many mouths, some of them *cul-de-sacs*, some shallow, with here and there one that was navigable; among the latter, the Ribble would appear to be the chief, both from its name, and from the town and port of Ribchester, *i. e.*, Ribbleceaster. The name of the Ribble appears to be *C. Righ-bel*, the chief mouth or entrance, and the earlier name of Ribchester, *i. e.*, Rigodunum, to be *C. righ-go-dun*, literally the chief-water town,* that is, the the town on the principal river or stream.

The name of the other estuary, Seteia, I take to be derived from *C. sa-dae*, the stream rampart, as marking the mutual protection it afforded to the inhabitants of Wirral and to those of the black coast, the Ordevices of Roman history;† or, the name may be from *C. sa-ta*, that is border stream; or *sa-da*, two streams; the river itself being called by the Welsh *dwedyfr*, or *dyfrdwy*, which also signifies two streams. Requiring to keep open their communication

* G, aspirated by a subjoined *h* in the middle or end of a word, is rendered quite quiescent, or suppressed in pronunciation. *O'Reilly*. In Welsh *righ* becomes *rhi*. *C. Go* means literally the sea, but probably was also used generically for any important piece of water or stream.

† *C. or*, coast; *dubh*, black; Latin *vices*, neighbours.

from Chester to the sea, it soon became a strategic necessity to the Romans to guard the black coast of North Wales, on which no doubt they incurred many disastrous losses from wrecks, like those which have befallen so many subsequently; but those wrecks would be still more disastrous to the Romans, so long as the coast was in the hands of a hostile people, and so they took possession of Anglesea or Mona,—the island of the holy relic,—and formed a road guarded by a chain of forts from Anglesea to Chester. Thus naturally they would prefer to use the channel, since called Chester water; to that of Hoyle Lake, as they would desire to give the hostile people of Wirrall a wide berth; an inference which is confirmed by the absence of all those remains which, it is well known, the Romans constructed usually, if not always, wherever they settled for any lengthened period. It is true that coins, and fibulæ, and other trinkets, and articles of minor utility have been found at Great Meols, but these are not relics a people like the Romans would leave as the only memorials of an abiding residence.

Upton appears to have had an earlier name, Overchurch, Overchapel, and Over; if I am correct in ascribing this last form to C. *Omh*-ire*, signifying lonesome unfrequented land, it would appear as if it had been, at any rate for some time, the ultima thule of Celtic colonisation.

In March, 1867, the following paragraph went the rounds of the papers:—

“EXTRAORDINARY DISCOVERY OF TREASURE-TROVE NEAR WEST HARTLEPOOL.—An extraordinary discovery of treasure-trove has been made on the sea beach, midway betwixt West Hartlepool and Seaton Carew. The surface sand was washed from the beach by the late storm, and for upwards of a mile

* Aspirated *m* has the sound of *v*.

along the shore layers of peat were exposed. On Sunday afternoon some men, observing the curious appearance of the peat, turned some of it over with a stick, and found several coins embedded in it. They were quite black, but on rubbing them they were found to be Spanish dollars, about the size of a crown. The men renewed their search and found a large number, but the tide was approaching and they had to desist. A report of this find was soon spread about, and when the tide receded hundreds of people were on the sands in search of the treasure. During the whole of the night the people were working with lamps, and some of them picked up as many as ninety of these coins. Altogether some hundreds of coins have been found. Besides silver coins, which are dated from 1720 to 1804, some gold coins have been found, a gold crucifix, and gold rings. On Monday morning, some thousands of people were assembled on the beach, as though a gold mine had been discovered, and men, women, and children were engaged in searching for the treasure. In 1829, a vessel called the *Duck*, of London, came ashore at this place, and amongst her wreck was then found about £300 worth of these dollars. The vessel had formerly been a Spanish slaver, and was taken by the English as a prize, and the coins had evidently been secreted in her timbers.”*

In a few days followed the additional information, that

“On Tuesday, the ‘scene’ on the West Hartlepool sands, where the Spanish coins have been discovered, was as animated as on the preceding day, and the mania has assumed such dimensions that apprentice boys are deserting their employment and trying their luck in the search after fortune. The number of coins found on Tuesday was not so

* *Liverpool Mercury*, 18th March, 1867.

great as on the preceding day, but a magnificent gold ring was found."

It will be observed how very prosaic and simple is the explanation given of this singular discovery. There is not the slightest suggestion that on this spot there was formerly a Spanish settlement, and that the coins of gold and silver and the rings were indisputable evidence of its existence, though probably the coins, at any rate, numbered thousands; for it is said, that "hundreds of people" and "some thousands of people" were assembled and engaged in the search, and that some of them actually picked up as many as ninety of the coins. It is manifest that the people of West Hartlepool are very unfortunate in their chronicler; if such a "find" had occurred in Wirral, the story would have been greatly amplified; and probably there would have been positive assertions of the former existence of a gorgeous cathedral, based upon the discovery of the golden crucifix, and the conspicuous piety of the Spanish people.

It is well sometimes to look at subjects of local interest from the stand-point of a distant observer; and, supposing the chronicler of West Hartlepool to relate the discovery of coins and rings at ancient Meols, what is likely to be the explanation of one with so little love for the marvellous? Probably he would say, William III. sailed from Hoylake with his army for Ireland; on the staff of the army and in the sovereign's train were various people, who, whilst they awaited the gathering of the army and the sailing of the fleet, amused themselves with inspecting the various antiquities and other curiosities of Chester, which then, as now, were of interest to men of education. They of course purchased largely of the light portable articles presented to them, which represented pretty nearly all ages of English history. These purchases they took with them to the place of embarkation, at

ancient Meols, but in the hurry of embarkation, from want of room on board, or some other accident, several packages, in which these antiquities were conveyed, were left behind. After the departure of the fleet, and when the locality had resumed its ordinary quietude, the inhabitants, who had enjoyed considerable experience as wreckers, broke open the boxes, and helped themselves to the clothes and other articles, with the value of which they were acquainted ; but, being unable to detect the metal of which all this antiquarian rubbish was composed, it was allowed to fall amongst the sand, where it was forgotten. By degrees the coins and other antique articles sank into the sand, and were covered by additional sand which drifted over them ; there they remained until the early part of the present century, when the weakening of the current through Hoylake allowed the flood-tide through Hoose channel to return towards its former position ; in doing this “ the surface sand was washed from the beach, and for upwards of a mile along the shore layers of peat were exposed. Some men observing the curious appearance of the peat turned some of it over, and found several coins embedded in it.” These and other articles excited and perplexed those lovers of the marvellous who are ever ready to accept any story which avoids probability, even though it be as extravagant as the tale of the Three Black Crows !

If there is present any enthusiast who believes that the antiquities of Meols are *in situ*, he must not attribute the foregoing irreverent explanation to me, it is supposed to be furnished by the reporter of West Hartlepool ; who it is very clear must be a novice, and does not understand the true functions of his office ; if he would be content to study for a short time in Liverpool, probably he would find one or two experienced teachers, by whose instructions his future practice would be greatly improved.

About the same time as the discovery of these Spanish remains, and on part of the same east coast, there was a similar "find" of coals, and in the like prosaic spirit these coals were assigned to the wreck of a collier. In both cases I believe every vestige of the vessels had disappeared, yet, it was not inferred that either the coals or the antiquities were *in situ*.

It is remarkable that in 1828, Mr. Eyes, a surveyor in Liverpool, was employed by the Duchy of Lancaster to examine the shores of the port of Liverpool, with a view to ulterior proceedings at law. He was instructed *inter alia* to obtain the best information on the changes in high and low water mark; the nature thereof, and the periods when they took place; and to notice all other circumstances which may throw any light upon the claims of the Duchy to the strand and bed of the river. And although Mr. Eyes notices the destruction of land in Little Meols, Hoose, and Great Meols, he does not make the slightest allusion to the submarine forest and graveyard. As his instructions are dated 30th June, whilst the *Liverpool Courier* announced the discovery of the graveyard on 19th March preceding, it is clear that Mr. Eyes' survey and report were made subsequent to the alleged discovery; yet he makes no allusion to either graveyard or forest, though undoubtedly they would be part of the best information on the subjects of his inquiry. Probably he did not accept the romance of the cemetery; and possibly neither the trees nor the fibulæ had been uncovered at the time of his first survey; the second was more superficial.* As of William III, so of preceding monarchs who carried war into Ireland, Wales and Scotland; Hen. II. John, and Edw. I. more especially; and the ruder relics of buckles etc. of those dates may be so derived; King John is intimately associated

* The text of Mr. Eyes' Survey is published in *Trans. Hist. Soc. L., &c.*, vol. x. N. S. 1870, pp. 171-246; the illustrative maps were not available.

with the neighbourhood, by his incorporation of Liverpool, the formation of the Royal Park out of the townships of Toxteth and Smithdown, and his traditional sojourn in the castles of West Derby and Shotwick.

It will be remembered that Cæsar describes some of the ancient Britons as having infinite store of cattle; and the inland people as seldom troubling themselves with agriculture, living on milk and flesh meat, and clothing themselves in skins. This description appears to apply generally to the Celts of these islands, for Mr. Joyce gives several illustrations, in his interesting book on the *Origin and history of Irish names of places*. There appear to be various illustrations in this neighbourhood: as Oxton, C. *oc-dhun*; Bevington, now part of Liverpool, and Bebington in Wirral, which appears to be C. *babhun-dhun*, in which *babhun* represents a corrupted form of *badhun*, a cattle enclosure. *Lios*, from which the first syllable of Liscard has been derived, is supposed originally to have represented a cattle enclosure; that at one time it represented simply an enclosure is rendered very probable from its appearance in *eug-lios*, a churchyard, literally a death-enclosure. The cattle enclosure would naturally be in the stronghold of the tribe; here their women and children would also be placed, and subsequently their chief; and thus the gradual extension of its signification to house, habitation, palace, court, and fortified place. Dungeon, near Speke, perhaps illustrates a similar change, for it is probably a corruption of *daingean*, which signifies a stronghold, fortification, or enclosure. Joyce says that in Ireland it is applied to a stronghold of any kind, whether an ancient circular fort, or a more modern fortress or castle, and gives name to a considerable number of places; Dangan being the correct English form.

The word *tor* appears to have retained its original meaning, whilst *tower* has been transferred to the class of buildings

which formerly occupied the *tor*. Mr. Joyce says (p. 271), *Teamhair* (pronounced tower, the aspirated *m* having the *u* sound of *v*) is a simple word; . . . it signifies an elevated spot commanding an extensive prospect, and in this sense it is frequently used as a generic term in Irish MSS. In Cormac's Glossary it is stated that the *teamhair* of a house is a *grianan* (i. e., balcony), and that the *teamhair* of a country is a hill commanding a wide view. This meaning applies to every *teamhair* in Ireland, for they are all conspicuously situated; and the great Tara, in Meath, is a most characteristic example. Moreover, it must be remembered that a *teamhair* was a residence, and that all the *teamhairs* had originally one or more forts, which in the case of many of them remain to this day. The genitive of *teamhair* is *teamhrach* (taragh or touragh), and it is this form which has given its present name to Tara, in Meath, and to every other place whose name is similarly spelled. By the old inhabitants, however, all these places are called in Irish *Teamhair*. Dr. O'Donovan mentions that in the townlands of Teamhair, parish of Templecainn, Co. Donegal, is "Cnoc Teamhrac," hill of fine prospect or pleasure; which may well interpret the origin of "Noctorum," in Cheshire.

In Landican, which appears in Doomsday Book as Landechene, is possibly a record of one of the earliest churches in Wirral, unless it be assumed that on the introduction of Christianity the existing temples were converted to the purposes of the new religion. Dr. Ormerod has conjectured that a church in Landican preceded that in Woodchurch, which now gives name to the parish. The name may be interpreted as the church of the upper part, or of the hill; but I feel very doubtful that Lann in this case has any reference to religion, and think it was more probably used in its earlier signification of enclosure or settlement. The name may have been *lann-de-ceann*, the

enclosure of the chief; or *lann-du-ceann*, the enclosure or field of two heads, an example of a place of execution similar to those noticed by Mr. Joyce as being found in Ireland.

Poulton, near Bromborough, is distinguished from other places of the name by the addition of Lancelyn; that is, *lann-ce-linn*, or pool church land; more correctly perhaps the pool settlement, a ruder and therefore earlier synonym of Poulton, with which it is now conjoined.

The word Thingwall is well known as of Danish origin, and indicating the place on which the people assembled, and laws were framed and promulgated. In Domesday Book Thingwall in Wirrall appears as Tuigvelle, *i. e.*, I suppose, *Tuighe-fel*, literally the thatch covering or roof of debate; or, if the final *le* of the name in Domesday Book represents *C. li*, the thatch roof of law debate. From this it would appear as if the assemblies referred to were not held in the open air: possibly the top of a hill, in this case perhaps where the mill now stands, was selected that it might be conspicuous, and to prevent any surprise from parties who, worsted in the discussion, might wish to appeal to the *ultima ratio* of kings. This explanation of the name also indicates the distinction conferred by a thatched roof. From the Coucher Book of Whalley, it appears that, so late as the end of the thirteenth century, roofs were covered with turf in the Meols of Lancashire. But it must not be hastily assumed that the thatch was of straw, as reeds or rushes may have been used instead. The contiguity of the townships of Thingwall and Landican is suggestive, as the land in each may have been originally assigned for the Chief and the House of Legislature respectively.

If the Celts had their deliberative assemblies analogous to the Folkmotes of the Saxons and the Things of the Danes, it is not impossible that to them we owe the word hurly-burly; for *C. airle* means either counsel or loan, and

bearla, berla, or beurla, language or dialect. Teige O'Rody, quoted by O'Donovan, says, the Irish is the most difficult language in the world, having five dialects, viz., the common Irish, the poetic, the law or lawyers' dialect, the abstractive, and the separative dialects. If then *airle-bearle* represented what is now called parliamentary language, it is easy to understand how noisy and rude it might be at times, especially if treating of a loan, since in some places in the present day it takes the form of bowie knives and revolvers.

The witches in *Macbeth* might well conjoin the hurly burly with the battle. Nares glosses the word, "well, they fall out, they go together by the eares, and such a hurly burly is in the roome."* The French have an adjective *hurlu-berlu*, glossed *etourdi*, i. e., stunned, but how stunned the dictionary says not, though *etourdi* may mean *les oreilles importuner par trop de paroles*. If *hurluberlu* is used in this sense, it may well originate from a war of words. It may be observed that *C. eidearlas* is rendered hurly-burly; it seems to be compounded of three Celtic words, *eid-dear-leas*, signifying the tax great court, or the great tax court, *eid* being a tribute, tax, or subsidy. On the other hand, the Welsh for hurly burly is *cynhwrf*, compounded, according to Owen, of *cy*, a prefix signifying mutuality, like the English *com* or *con*, and *twrv*, a rising, stir, tumult, or interruption, the compound word therefore indicating a disturbance of any kind.

A comparison of *tuighefelli* with *eidearleas* indicates the birth of the constitutional government in the British Isles, by the enactment of law; that is the surrender of prerogative was purchased by tax, tribute, loan, benevolences, or boons, whichever name the contribution to the common fund might bear.

* From the *Nest of Ninnies*.

It is noticeable that, in proceedings before the House of Lords in 1725, John Tatt, appellant, and John Mercer, respondent, in reference to property in Thingwell, Lancashire, mention is made of *Boonsfield House*, which name seems to be derived from the land upon which the *boons* rendered were collected. There is but imperfect indication in the names of places of the importance of the Danish settlements on either side of the Mersey; they may have adopted from similar motives the sites of the Celtic Tuighefelli, or they may have translated that name into the word of a similar significance in their own language. Be that as it may, were it not for the record in Domesday Book there would not be in this neighbourhood any recognisable trace of the Celtic legislature.

In *airle* we seem to have the original form of the title earl, from which eorle may have been borrowed by the Saxons, both office and designation, as they gained power. Churl, which so often forms a verbal antithesis to earl, may very possibly be Celtic also, for *caor-ell* signifies a flock of sheep, the keeper of which may have acquired that for a designation; and subsequently the dissyllabic sound may have been run into one syllable, caorle, to be retained by the Scotch as carle, by the Saxons as ceorl, and softened by the Normans into churl.

Though the preceding illustrations have been selected from places principally in Wirral, there are many between the Mersey and the Ribble traceable to a Celtic root. Wavertree is a notable example; to that name a Teutonic origin has been ascribed, but the terminal *tree* has presented ground for dissatisfaction, and I am disposed to think it is a corruption of C. *tir*, region, or place, of which an example appears in Domesday Book, where *ceann-otir* is spelt chenotrie; the Welsh form of *tir* is *tre*. The orthography of Wavertree is very various, and its pronunciation has been at

least threefold, as shown by that spelling; Wartre, Wauertree, Wavertree.

Some of these variations arise merely from the substitution of *u* and *v* for each other. The original form of the name I apprehend to have been *uadh-tir*, signifying the solitary or lonely region, *i. e.*, the wilderness. A designation not inapt, if the ancient burial place lately discovered in Victoria Park is evidence of the density of the population.* Childwall Heath, as it was called formerly, was of considerable extent, and included a large part of the township of Wavertree. The present name may be deduced as follows:—*Uadh-tir*, the aspirate rendering *d* mute leaves *ua-tir*; perhaps the next change was *tir* into *tre*, and the name from the broad sound of *a* passed into Wartre or Wautre, *u* consonantal being changed into *w*. Mention is made in Dugdale's *Monasticon*, and elsewhere, of Wartre Priory, in the East Riding of Yorkshire, the name of which may have a similar origin; so also those of Waverley and Waverton, could they be ascertained. In the Calderstones may be found another memorial of the Celts. Standing at the junction of three townships, Wavertree, Allerton, and Little Woolton, they were formerly regarded as Merestones, *i. e.*, boundary stones, but are now admitted to be of Celtic origin, and have engaged the attention of various antiquaries, amongst whom is Sir J. Y. Simpson.† The name may represent *ceall-der*, a small temple. I apprehend that *der* small, little, is the original of the English word dear in both its senses, of beloved and costly; the latter is sufficiently obvious, the former is another of the numerous examples of the conversion of terms signifying minuteness into the language of endearment. Derby may signify the oak place, from C. *dair*, an oak, an interpretation

* *Hist. Soc. Trans.*, vol. v. N.S. p. 87.

† H. Eeroyd Smith, *Hist. Soc. Trans.*, vol. viii. N.S. p. 87.

which is consistent with the topography both of West Derby and of the chief town of Derbyshire. The latter was at one time a small Roman settlement, as testified by the hamlet, now a suburb, of Little Chester. Its Saxon name, *weorthig*, signifies a farm, or manor, also a public way; the latter may have reference to its position on a Roman road. It would be erroneous to suppose that the name is wholly Danish; for that people, like the Saxons, frequently adopted the existing name of a place, adding some epithet or other mark of their own. The two pronunciations of the name of Derby are curious, considered with the inflections of the Celtic, for whilst an oak tree is *dair*, an oak-apple is *darabhul*.

The name of Crosby appears to be another example of the practice ascribed to the Danes, for the Danish form of the word cross is *kors*; and it is not certain that the Danes who settled here were Christians, which the name would seem to imply. The Celtic *ce-ros*, signifying earthwood, no doubt accurately describes the locality as it was when the name was conferred; for even now remains of trees abound in various parts of Crosby, and it is recorded that much has been used for building purposes. Similarly, Crossens and Croston denote the streams and the town on the earthwood. There are places named Crosby in Cumberland, Yorkshire and Lincolnshire.

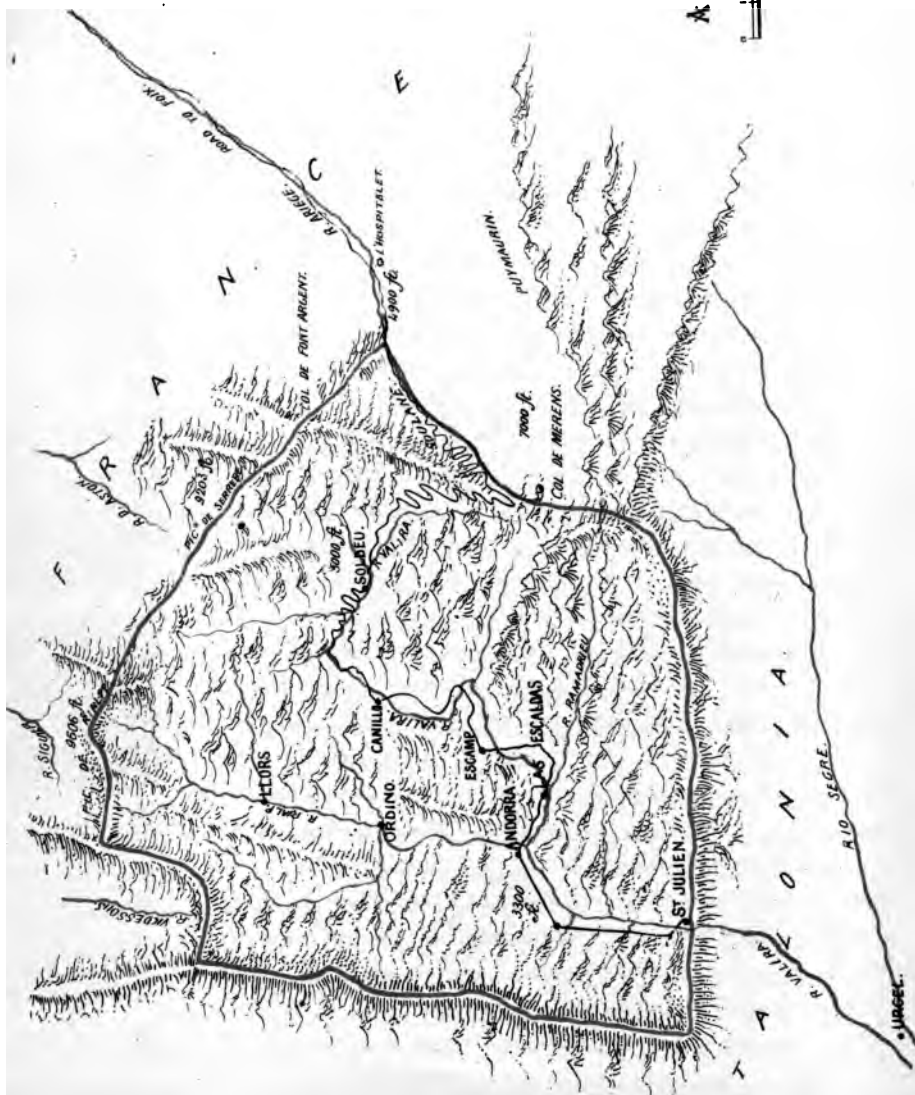
The Meols are remarkable features on both sides of the Mersey; they probably derive their name also from the Celts. *Magh-ol*, or *Magh-ull*, the great plain, describes the large extent of level country of which they consist, and which, from Holt's *Agricultural Survey*, appear in Lancashire to extend under the sandhills. In the name of Maghull the orthography is identical with modern Irish, though the pronunciation is better preserved in Meols, the Lancashire sound. The village of Maghull is on a great plain. The plural form of the Meols seems analogous to that of the

Leasowes, perhaps consequents of partition among different owners. Great and Little Meols, in Cheshire, were no doubt so distinguished from the comparative extent of the respective townships, which possibly were settled contemporaneously with those in the Lancashire Meols, that is, by the Saxons. If the names Meols and Leasowes are respectively Celtic, and Teutonic, the latter is of more recent date, and like the name of Hoose lends confirmation to the supposition that the tracts bearing the names were not settled, nor ready for settlement, until after the course of the Birket through Wallasey pool had been reversed, in consequence of the inroad of the sea into the Mersey.

A writer in the *Athenæum* recently expressed surprise that the name of Dicky Sam should be retained; and he, like many others, seems at a loss to explain its significance. On a former occasion I suggested an A.-S. origin, namely *dic*, a dike or ditch, and *samnung*, an assembly; but these words apparently are derived from the Celts, with whom *dig*, genitive *dighe*, signified a pit, a dike, a ditch; and *samhadh* men, people; these two words then, *dighe samhadh*, signifying the people of the fens, would soon pass through Dicky Sammy into Dicky Sam, especially as the aspirated d is mute. The Celts appear to have been a people partial to equivocal language, such as admitted of a play, closely resembling that object of Dr. Johnson's aversion, a pun; and I suspect that the name Dicky Sam is an illustration. *Samh* signifies as a substantive rest, ease; as an adjective pleasant, still, calm; *Samachan* denoted a soft quiet person; the similarity of the meanings of this word with those of the English word *soft* and its congeners, leads me to suppose that in its uncomplimentary sense, Dicky Sam was equivalent to softy, or "sawfty," to give it the true Lancashire breadth of sound; to this day the word Sammy is still used in an uncomplimentary sense.

Though the investigation of the names of places in West Derby and Wirrall which have a Celtic origin is by no means exhausted, it is time to bring this paper to a close. The suggestions I have offered are designed to supply a want which may have been felt by others as well as by myself. I should rejoice if those who are more familiar with the language would cultivate the field, and offer the harvest of a better and fuller crop. Meanwhile, perhaps enough has been done to indicate how much information is concealed within the names of places, some of which is even now ambiguous, in consequence of the changes which have occurred ; and that ambiguity will be increased if there be further delay. The growth of population will necessitate alterations which will modify or destroy those local features, a constant reference to which is essential to a right interpretation of these sibylline messages. As opportunity after opportunity is lost, the number of leaves which can be correctly deciphered will be diminished.





A VISIT TO THE REPUBLIC OF ANDORRA.

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Having during the past summer had an opportunity of visiting an interesting and rather secluded mountain district, I have thought that a brief account of what I saw and heard during the trip might prove a matter of some interest to our Society, and perhaps awaken in us some curiosity and desire to know more of the annals and fortunes of a people among whom the principles of Free Trade have flourished for a thousand years; a people who during that time have enjoyed the advantages of constitutional government without any interruption, and among whom the principles of constitutional law have grown up into a well developed system, by practice and precedent, as they have on a larger scale in this country. It is an interesting subject of inquiry to determine the causes which have enabled a mere handful of shepherds, in their secluded mountain home, wedged in as they are between two mighty and powerful empires, to escape the fate which, through the greed of annexation, has overtaken so many comparatively powerful States, and this too, at the hands of the very powers which hem in on either side the little Republic of Andorra; this political phenomenon will be in a great measure explained when we come to the consideration of the nature and origin of the constitution of Andorra.

To reach Andorra by the most direct route, you travel almost due south from Paris; a day's rail through the fine

vallies of the Loire and the Allier brought us to Clermont, in the centre of the old volcanic district of Auvergne ; here we stayed for two days, that we might have an opportunity of seeing something of the neighbourhood ; we were delighted with the beauty and richness of the country ; no where did we find the vines more beautiful and luxuriant ; for miles round Clermont the soil appears to have been originally formed from volcanic ash ; we devoted one day to the ascent of the Puy de Dome ; two hours' drive brought us to the foot of the grassy cone ; we had a bright sunny day, but a pleasant breeze which made the walk most agreeable ; the grass at our feet, all the way, alive with grasshoppers of various hues, and the air filled with their incessant twitter ; this varied occasionally by the much more shrill chirrup of a cicada ; a black field cricket was also numerous, which skipped about almost silently, expanding at each jump its bright crimson wings ; we observed few small birds, but saw several magpies, and one or two kites ; the small birds would probably be driven into the woods at this season on account of the heat of the sun. When we reached the summit, a glorious prospect burst upon us ; the craters of ancient volcanoes, extending for miles to the north-west and south-east, now covered with luxuriant grass, and affording pasture to numerous herds of fine cattle and sheep ; on either side, hills covered with vines to their very tops ; and to the north, the wide plain of the Department, studded thickly with towns and villages ; and towards the east a fine view of the plateau, on which stood the ancient Gergovium, the scene of one of Cæsar's most difficult contests with the ancient Gauls. Returning from the mountain, we diverged from the main road, and walked down a deep gorge which ended in a beautiful valley, embosomed in which we found a most picturesque watering place, Royat, situated about five kilometres nearer to the mountain than Clermont. Hot springs abound in this locality ; and two

miles from Clermont there are also wells of bitumen, which afford a considerable revenue to the proprietor. Going south from Clermont, our way still lay for some distance along the valley of the Allier; the railway passes among vineyards, over what once was Cæsar's camp, when his army lay beleaguering the ancient Gergovium, the scene of a glorious act of heroism on the part of one of his officers,—an act worth recalling in the present day, when the world has been struck with horror at the torrents of blood unhappily shed on the same soil.

Marcus Petreius, a centurion, was trying with a few of his men to force one of the gates, when, having received several wounds, and finding himself overpowered by numbers, he called out to his soldiers, "Since I cannot now save myself with you, I will at least look to your lives, whom, from an insatiate love of glory, I have rashly led into danger; so, when I give you the opportunity, consult for your own safety;" at the same time he rushed among the enemy, and, slaying two, drove the rest a little back; to his men, coming on to assist him, he called out, "In vain ye seek to save my life; I am already fatally wounded; hence at once, while you have the opportunity, and betake yourselves to the legion." Thus fighting he soon fell, but secured the safety of his men; generous deeds like that of Petreius redeem much of the savagery of war; and, even after the apse of nineteen centuries, our admiration and our sympathy are awakened when we stand on the spot consecrated by such an act of heroism.

As we proceed along the higher parts of the valley of the Allier, we are carried through scenery of surpassing beauty; the railway crosses and recrosses the river several times, is carried along the sides of giddy precipices, where the view is frequently interrupted by short tunnels; and as you shoot from tunnel to tunnel you see panoramas of mountain, wood,

meadow, and corn-field flitting before you. The meadows in this district were of the most vivid green, which they owe to the admirable system of irrigation, by which every little mountain stream is utilised. Leaving the valley of the Allier, the railroad turns to the south-west, and, clearing several tunnels, descends the valley of the Cere, a river flowing south, and then west, into the Dordogne. On emerging from one tunnel, we saw towering behind us the lofty summit of the Plomb de Cantal, rising six thousand two hundred feet, five hundred feet higher than the Puy de Dome. This is the highest mountain in central France, the culminating point of the high land separating the watershed of the Loire and Allier on the north, from that of the affluents of the Garonne on the south; now the scenery was entirely changed, barrenness and desolation seemed to reign supreme; no vines, no grass, no verdure, the hamlets small and widely scattered, arid rocks in every direction, and the stunted trees completely burnt up, the leaves as dry and parched as they are with us at the end of October; not a green leaf to be seen, and scarcely any vegetation but buckwheat, which appeared to be the principal crop of the district; we were told that it was almost entirely upon this crop that the inhabitants depended for their maintenance, the country growing neither vines nor grain. Where this mountain-country begins to break down into the great plain, extending to Toulouse, we were detained for a day, in consequence of the trains being required for the moving of conscripts; this was at Aurillac, where a horse fair happened to be going on at the time, which gave the old-fashioned country town very much the appearance that I have often seen in country towns in Ireland, with however this difference, that there was less noise and much less drinking; this town has a very good well-shaded boulevard, on which there is erected a fine statue of Sylvester II., the first French Pope.

From about this town a vast plain extends to the Pyrenees, broken only by an occasional hill, a distance of upwards of sixty leagues; in the general aspect of this country there is one very striking feature, which can hardly escape the notice of a stranger,—the towns for the most part, and the villages invariably, are perched on the top of hills and eminences, generally to the eastern side, and, wherever the form of the hill permitted, under the shelter of the topmost rocks; this arrangement was evidently for the purpose of avoiding the burning heat of the arid plain in summer, and of securing shelter from the strong west winds which in winter sweep over the plain from the Bay of Biscay. One of these particularly attracted our attention; it is Capdenac, situated upon a very abrupt hill, near the point where the railway crosses the broad river Lot; this hill appeared to be about five hundred feet above the level of the plain; at the top it was crested by a precipitous cliff, about thirty feet high, and above this cliff the town was built on the summit, so that for about three-fifths round it had quite the appearance of a fortress, and was a most picturesque feature in the landscape. Another point struck me as worthy of notice, in passing through this part of France, namely, the immense numbers of towns whose name terminate in *ac*, as Aurillac, Figeac, Gaillac, Capdenac; you meet with them continually, and always near rivers. I believe that this *ac* was originally *acques*, the Romanesque word for water; and we have in these words a stamp left upon this part of France by that race, now long extinct, but formerly in these regions celebrated alike both in battle and in song.* At Toulouse we meet the Ariège,

* In the discussion which followed the reading of this paper, it was suggested that the termination *ac*, was rather Basque than Romanesque. In reply to this objection, I submit that the termination *ax* is admitted to be derived from the Roman *aqua*; Romanesque *acques*; and *ac* I believe is a mere variety of *ax*. It is evidently not of Basque origin, for it is not found in the south-west of France, and in the adjoining province of Spain, where the Basque people still exist; besides, it

which beautiful river we have to trace from its confluence with the Garonne to its source in the mountains of Andorra. We have still rail to Foix, and here we arrive at eleven o'clock at night, just among the mountains; the scenery magnificent; the hotel where we stayed, formerly a mansion of the Counts of Foix, is built with its back right against the rock; in front, the rapid crystal river; just over the bridge, within five minutes' walk, on the top of a precipitous rock, the ruins of an ancient castle, formerly the castle of Gaston de Foix, the friend and fellow-warrior of Francis the First; in later times a dungeon of the Inquisition. Of late years a portion of it has been repaired, to be used as a prison for the Department; when we visited it, it was applied to the temporary purpose of a barrack for the assembling conscripts. The principal room of the hotel had evidently been once a banqueting-hall, the whole of the floor was mosaic, the arms of the families of Foix and Bearn being worked in the centre. The next day we proceeded in an open carriage, still by the side of the Ariège, to Ax-les-bains, a distance of nearly thirty miles, the scenery getting grander and grander as we proceeded. We were now in the middle of the mountains, surrounded by woods, precipices, and cascades. Ax, though now deserted on account of the war, appears to be a flourishing watering place. The water issues from the earth at almost a boiling temperature. The same evening we drove on eighteen kilometres, to L'Hospitalet. This road is all right up the mountain; it crosses the river again and again from one side to the other, affording an ever varying prospect

has been observed by philologists that, when one race has been supplanted on any soil by another, the primitive race is more apt to leave the mark of its language in the names of rivers than of places. Now throughout all the central and southern districts of France, we scarcely find the name of a river that does not contain the *r*, the consonant that abounds so much in Basque. It is probable that the ancient Aquitanian names of the rivers have survived both the Celtic and Roman conquests, while the names of places have been fashioned according to the ideas of the conquerors.

of mountain, wood, and waterfall. The unpicturesque hamlet of L'Hospitalet is situated almost close to the frontier, and contains about thirty or forty common stone houses, all occupied by shepherds, or mountain farmers; the whole has a gloomy appearance, and nothing of the generally smiling aspect of French villages; this is no doubt owing to its great elevation among the mountains, fifteen hundred metres.

Notwithstanding the unpromising appearance of the place we found an inn, in which we had tolerable accommodation, and where we were enabled to make arrangements for our expedition into Andorra. We were a party of four, two ladies and two gentlemen, and we had to engage four horses and two guides; the first difficulty that presented itself was the want of side-saddles, but our purveyors undertook to arrange this by rigging up ordinary saddles for the occasion. On these terms we were to start at six o'clock in the morning; very soon after that hour we were told that the horses were ready; they certainly presented a picturesque appearance, and their equipment did credit to the ingenuity of our guides, who, we found, are not often called upon to find horses and saddles for ladies to climb over the Pyrenees with; our latest predecessor, an English lady, our guides informed us, was the venerable Lady Franklin; but she was carried on a sort of chair. The ladies' saddles were provided with a hay pillow, tied on at one side, serving for a *point d'appui* for the back, while the feet rested on a little board, slung with cord, for a stirrup, the whole saddle spread over with a sheep-skin; on this a lady might sit tolerably comfortably, as long as she had confidence in her horse, and her head did not get giddy from looking over the precipices. After having our passports examined by the Mayor, who seemed rather puzzled as to what business we could have in Andorra, we got the ladies mounted, and left the village in single file, scrambling along a stony bridle road; at the end of a hundred yards we crossed

the Ariège, on a flat wooden bridge, and proceeded along its banks, getting higher every step, till in about half an hour we reached the frontier, passing the custom-house, represented by a hut and an officer wrapped in sheep-skins, who took no notice of us, as we were going out of France, not entering it; it took us nearly three hours to reach the head of the pass, all our way being over rough stones, and a great part of it along the very edge of deep precipices. Finally we reach the summit, climbing up a zigzag, getting ever steeper, till it reaches the plateau on the top; as we ascend we have on our right the lofty mountain of Soulane, now supplying numerous flocks and herds with pasture, on the left the more rugged and barren Puymaurin, over which a fine zigzag highway has been constructed, leading to Puycerda, in Spain. Having reached the summit, which must be about seven thousand feet high, we look down in front on the valley of Andorra, the far view bounded by the peak of Siguier, nine thousand six hundred feet high, the limit of the Republic in that direction; on our left, half a dozen rugged peaks trend away to the south-west, masses of broken rocks, among which patches of snow still remain in the middle of August, (this range of rocks bears a very close resemblance to the range of the Black Reeks in Kerry, near Killarney;) from a little lake at the foot of these cliffs, on the north-east side, issues the Ariège; the different streams on the south side unite to form the principal source of the Valira, which winds all through the valley on its way to join the Segre, in Catalonia; on our right the grassy peaks and slopes of the Soulane close in the view. Our descent is of the same character; a steep zigzag bridle road, so steep and so rocky that we preferred walking until we had got a good way down the mountain; our way lay, at first, through rocks and scattered pines, among which, far beneath us, we observed a fine eagle soaring along; when we got into the valley, some signs of cultiva-

tion became gradually apparent,—little meadows, by the edge of the river, carefully irrigated,—and, as we went further, patches of rye, maize, and tobacco. We halted at the first village, Solden; here we had breakfast, and fed our horses; this caused a delay of two hours, in consequence of which it was nearly dark when we reached Andorra, a good deal jaded, as we had been either walking or on the saddle for more than nine hours. We had a fine day, and were enchanted with our ride; up and down steep cliffs, by the banks of a beautiful river, clear as crystal, rolling over great rocks of polished granite; magnificent and towering mountains on every side, half covered with forests, and pouring down precipitous cascades; along the winding banks of the river a strip of smiling cultivated land, well irrigated meadows, green as an emerald, or gardens, or corn-fields; and on the sides of the mountains little patches of cultivation, wherever the soil could be arrested and kept from being washed off the sides of the mountain; in many places the sides of the hills were terraced in this way to a considerable height, evidencing the painstaking industry of the inhabitants: the landscape was further enlivened by a great variety of elegant flowers and shrubs,—the red berried elder was very common,—and several shrubs which I did not recognise, with a profusion of red and black berries; wild raspberries and strawberries are abundant, and the red currant is also found, I gathered one bunch; the purple aconite grows in quantities; and we observed the campanulæ of our gardens, and two very elegant species of pink. A large species of Scotch thistle was often conspicuous, when full-blown as large as a good sized artichoke, and of a beautiful purple colour. We also observed a ground thistle, which might be regarded as a sort of wild artichoke; this has a large fleshy receptacle, and we were told is used by the people as an article of food. Between Solden and Andorra we passed through five villages; they have all a sombre and

gloomy aspect ; this is very much owing to their being all covered by the clumsy dark slate of the country, and to the eaves projecting about three or four feet in front of the house ; this is for the sake of shade in summer, but it adds to the general gloom of the village. They do not delight in glass ; with the exception of our hotel and two other modern-looking houses in the capital of old Andorra, we saw no houses with glass windows ; the fashion is to have the windows open to the air, but protected from the danger of intrusion by having an iron bar filling the interspace of each sash, and this worked in tracery ; it has a pleasing effect in summer, but I opine that in winter we should probably find the same windows stuffed with straw. The capital has a very dingy aspect, built without any regularity, on a little rocky eminence, on the right side of the Valira. The assembly house is a very old and very plain building, substantial but without any pretension ; the outer apartments are occupied in ordinary times by the schoolmaster and his pupils. One of the most pleasing features of the place was the prison, a very small lock-up, which, we had the pleasure of being told, was almost always untenanted. We had the advantage of an introduction to the Syndic (that is the title of the President of the Republic) ; we had an hour's conversation with him, and obtained a good deal of information from him about the laws and constitution of the little state that he presided over. We found him a well-informed, gentlemanly man, speaking French fluently, and apparently anxious to satisfy our curiosity to the utmost. The language of the people is Catalan, none of them speaking French except a few of the élite, or those whose business as drovers takes them frequently over the mountains. As the paths over the mountains are impassable from the depth of the snow for seven or eight months in the year, the intercourse with France is necessarily very restricted. With Catalonia, on the other hand, they have intercourse all

the year, consequently they have a much more extensive trade with Spain than with France. The people of Andorra have all the Spanish cast of countenance; you see at a glance that they are quite a different race from the French. The masses are evidently poor and badly clothed, their clothing for the most part being home manufacture; their wealth consists principally in the herds and flocks fed on their extensive mountain pastures, and the timber of the forests; their great difficulty consists in their scanty means of furnishing their cattle with winter fodder. This difficulty is partly met by their buying young cattle in France in the beginning of summer, and, after they have grown and fattened through the summer, driving them south to the Spanish market on the approach of winter. Their manufactures are very simple. We saw a primitive fulling mill at work by one of the rivers; they have also several forges, in which they work the iron from their own mines, smelting it with the charcoal which is supplied from their native forests.

The Andorrans are remarkable for being grave and reserved in their intercourse with strangers, very jealous of innovation, and intensely conservative. They are very energetic hunters, and have ample opportunity of indulging in this sport, as they have many chamois in their mountains, and have besides to keep down the wolves; and, though this now rarely happens, they do occasionally kill a bear. They are passionately attached to their rude and independent state, and almost revere their poverty, as in some measure the safeguard of their liberties; they feel, and perhaps with some degree of justice, that increased civilisation, bringing with it improved roads, luxuries, and gradually perhaps a certain degree of wealth, might excite the cupidity of their powerful neighbours and gradually undermine the constitution on which rests that independence which gives a healthy and even joyous zest to the hard lives which these lonely shepherds

lead in the solitude of their dark vallies, where, face to face with nature in her rudest aspect, all their energies are required to supply the necessities of a very simple life. They are rather prejudiced against education ; they fear that if the young were better instructed they might become discontented with the hard life of a mountain shepherd ; consequently their school instruction seldom gets beyond a knowledge of the catechism ; the old folk holding that, for a simple pastoral people, it is enough that they admire nature and worship God. This contempt for education, however, is happily not universal ; among the wealthier families it is not uncommon for the boys to be sent to school to Urgel, in Spain, and in some cases to Barcelona, or to some of the Lycées in France ; as a consequence of education being so restricted, the constitution, though theoretically a pure democracy, is practically aristocratic or rather oligarchic ; as there are only a few families who can afford to give such an education to their children as will fit them for holding the principal offices in the state, and worthily discharging the duties thereof, the result is that the chief offices become almost hereditary in some of the wealthier families, but as these offices are all gratuitous, there is not much temptation to an abuse of power on the part of those who hold them. The administration simply resolves itself into managing the affairs of the vallies as of a large family, where the interests are identical ; and as the suffrage is universal, the people have always the power of checking at once any encroachment on their liberties, if such were ever attempted ; but I have not been able to discover that any such attempt has ever been made ; the people seem always to have worked together harmoniously, as I have said, like a large family, and to have escaped the dangers of being distracted by rival factions, — dangers which have so often proved fatal to the liberties of other Republics. If we begin to enquire into the origin of the isolation of this small community, we see its

first cause in the geographical position of the vallies; thrust as it were into the very fastnesses of the higher Pyrenees, far distant from the great military passes between France and Spain, on the west across the Bidassoa, and on the east by the high road from Gerona to Perpignan, and themselves separated from France by passes which can only be traversed during four or five months in the year on account of the deep snow which blocks them up throughout the winter; they have never been the scene of actual battles between the French and Spaniards. Their perpetual neutrality, which has been so long respected, is the result originally of political complications that ended in a compromise, whereby the independence of the inhabitants was in the intention *incidentally*, but in the result *absolutely*, established. The territory is about sixteen miles broad in a direct line, and in its greatest length about twenty; on every side shut in by mountains all but inaccessible, except the narrow outlet by which the Valira conveys the waters of the valley into Spanish territory. When the Moors, in their rapid conquest of Spain, reached the Pyrenees, such of the remains of the Goths as refused to submit to the conquerors took refuge in these fastnesses, and there kept up a desultory warfare with their oppressors. That this struggle was a long and obstinate one is evidenced by the remains of Moorish castles, which still are to be seen in the vallies, and which from their situation appear to have been built for the purpose of overawing the mountaineers and repressing any excursion that they might make, or attempt to make, upon the low lands.

The different expeditions into Spain, undertaken by Charlemagne and his sons, at last relieved the Andorrans from the oppression of the Moors; the latter were driven south of the Ebro, and Christianity breathed again in the north of Spain. It was in one of these expeditions that Louis le Debonnaire, grateful to the simple shepherds for the zeal and

devotion with which they had tended and relieved the sick and wounded of his army, proclaimed the perpetual neutrality of the vallies; and from that day this neutrality, proclaimed by a mediæval monarch on the banks of the little mountain stream, the Valira, has been ever religiously respected, though for nearly two centuries after these very vallies were themselves the object of several savagely contested wars between rival French and Spanish claimants. In the reconstruction which followed the expulsion of the Moors from Catalonia, along with other grants, the tithes of Andorra were conferred on the Bishopric of Urgel. When Louis proclaimed the neutrality of the vallies, he placed them under the *suzeraineté* of Sicfrid, Comte d'Urgel. Subsequently, on the reconsecration of the Cathedral, Sicfrid, with the consent of the Emperor, made a grant of the vallies to the Bishop and Chapter. At a later period, in the year 843, Charles the Bald, the son and successor of Louis, made in favour of Sicfrid an absolute grant of the sovereignty of large estates in Catalonia, including the parishes of Andorra. From this era a continual struggle was maintained between the ecclesiastical and civil authorities. In one of these contests, Raymond Roger, Comte de Foix, was invited by the Bishop to give his support to the cause of the Church; he crossed the Pyrenees, gained several victories, sacked the city and cathedral of Urgel,—the city having supported the cause of the Comte against their Bishop, and the Chapter having given him but lukewarm support. To strengthen his interest in Catalonia, the Comte Raymond-Roger married his son, Roger-Bernard II., to Ermécenda, a Spanish lady, whose family had claims on Andorra through some grant made by a former Comte d'Urgel. In consequence of this marriage the Comtes of Foix became the rivals of the Bishops in the dispute about the sovereignty of the vallies. These disputes culminated in a bloody war, in which Roger-Bernard III. laid waste the estates of the Bishop with

fire and sword, laid siege to Urgel, hanged his prisoners before the walls, and proclaimed by his heralds that the besieged should all suffer the same fate if they did not at once capitulate. These fierce measures either terrified the besieged into submission, or they had no adequate means of resistance; and the claims of Roger-Bernard III. to the sole sovereignty of the vallies was conceded. It was further stipulated that the Bishop, within four years, should secure to the Comte the sanction of the Pope to the arrangement; failing this a heavy fine was to be paid, which was bailed by the King of Arragon. At the end of the four years, the ratification of the Pope not having been obtained and the money not being forthcoming, the Comte took up arms again; another bloody war was about to take place, when Jatvert, the Bishop of Valence, threw himself between the two armies, and conjured them to spare the effusion of blood, and refer their differences to arbitration. Happily his eloquence prevailed over the passions of the combatants; an armistice was agreed to, six arbitrators were appointed, and on the 7th of September, 1278, they pronounced their decree, which, under the name of *Pariatges*, a name that it still bears, was to become and remain to this day the constitution of the Republic of Andorra. The first article proclaims the joint and indivisible sovereignty of the Bishops of Urgel and of the Comtes of Foix. In recognition of this sovereignty, the vallies were subjected to a moderate annual tribute under the name of *Quistia*. The authority of the two princes was to be equal and indivisible; their joint authority was to be carried out by two lieutenants, one appointed by each power; these officers became virtually judges, they presided over the courts of justice, theoretically they were expected to act jointly, but either might hold courts independent of the other; but the decrees were always to be pronounced in the name of the two sovereigns. The payment annually of the *Quistia* (now not

so much as sixty pounds sterling) was to secure the Andorrans from any interference with their local administration. More than two-thirds of the Quistia was allotted to the Comte of Foix, and only one-third to the Bishop; this was probably in consideration of the Bishop and Chapter having the benefit of the tithes of the vallies. The larger portion of the fees that might arise in the course of trials before the judges was also apportioned to the French prince. These officers were called Veguers, in French Viguiers; in the first instance they were supposed to represent the princes, and jointly to exercise a very wide authority, but almost from the first their functions were little more than nominal. The Andorrans wisely secured from the Bishop the concession "that his Veguer should always be a native of Andorra; the French Veguer on the other hand being always some gentleman of Foix, who perhaps hardly ever crossed the mountains; never, indeed, except for some extraordinary occasion. The Andorrans have ever been persuaded that it is especially to this double indivisible sovereignty that they are indebted for the maintenance of their independence; far from regarding this nominal subjection as an incubus, they ever watch over the rights of their sovereigns with the most jealous interest; and great was their alarm when, in 1793, the authorities of Foix refused to accept the Quistia, on the ground that it was tainted with a feudal origin; this refusal, and the war with Spain that followed, caused a temporary interruption to the even tenor of the annals of Andorra, but on the re-establishment of peace, the Emperor, Napoleon I. issued a decree confirming their ancient privileges. The rights of the Counts of Foix, by intermarriage, had passed to the house of Bearn, and through that family to the Crown of France; on the other hand, the union of Arragon with the kingdom of Castile put an end to the possibility of troubles arising to the feeble republic from the jealousies of neighbouring chieftains.

When their claims were severally transferred to two great monarchies, the remoteness and the poverty of Andorra were sufficient securities against any disposition to encroachment on the part of the princes, and the vigilant patriotism of the inhabitants has always been successful in repelling any attempt at exaction or encroachment on the part of local governors or commissaries. When circumstances required them to make any appeal to the princes, they have not hesitated to send deputations to Madrid, to Paris, or even to Rome, when ecclesiastical questions rendered such a step necessary. The next officer in dignity, as representing the sovereigns, is the Batlle; he discharges the duties of a police magistrate, and acts as judge in civil cases; in the absence of the Veguer, he has also criminal jurisprudence. He holds office for three years. His appointment is made severally by the Bishop of Urgel and the French Court, from a list of six candidates nominated by the General Council. In case the litigants are not satisfied with the decision of the Batlle, they have the alternative of referring their dispute to a Judge of Appeals. This functionary holds office for life, and he is appointed alternately by the Bishop and the French Court, and he is always either a lawyer by profession or an experienced magistrate. Almost the entire duties of magistrate and judge are however discharged by the two Batlles, as the Veguer takes cognisance only of the more serious criminal offences, which happily are of very rare occurrence. It is the custom of the Batlle, when appointed, to associate with himself two or three old men, who have to some extent studied the legal traditions of the country; then, when he has a case of unusual difficulty to decide, he takes the advice of these friends separately, and so contrives to resolve his own doubts; this only occurs in knotty cases, and it is called consulting the ancients. The plaintiff has the choice of the Batlle by whom his case is to be tried. The expenses are

paid out of the costs, which are moderate, except in the case of an appeal, when the costs are fixed at 15 per cent. on the value of the property contested. To an Englishman this will not appear a very extravagant amount, but in Andorra it seems, among those frugal shepherds, to have had the effect of making appeals so very rare that the custom has almost fallen into desuetude. The Andorrans have a great horror of professional lawyers; and their jurisprudence is founded on equity rather than on law; nevertheless they do avail themselves of the experience afforded by the accumulated decisions of past ages; these decisions were unwritten, but handed down traditionally, until, in the year 1740, an industrious Batlle of the period undertook to make a written collection of them, at least of the most important, and from that time his successors have continued to add a chronicle of every important case. In this way the administration of justice has secured a firmer foundation, has grown up into a system, and is no longer dependent upon the frail security of oral traditions. Though all legal judgments are pronounced in the name of the sovereign princes, we see that their authority is merely nominal; and when we enquire into the machinery which governs the legislative and executive functions of the little State, we find that the people are in the fullest sense of the word self-governed; all authority emanates from the people of each parish. The State is divided into six parishes, or communes; the inhabitants of each commune have a municipal body of ten members; this body governs the affairs of the parish, is responsible for the collection of the Quistia; the supply of wood from the public forests to the iron forges of the valley, and also to the merchants of Urgel; and arranges the letting of the public pastures to graziers from Catalonia and Ariège. It elects every year two of its body, to represent it in the General Council, who hold office for two years. Of these four representatives the senior officiates

as Mayor in his own commune, and the second as deputy Mayor, and they both act generally as local magistrates.

The General Council of the Vallies consists of these four members from each communal council ; no ecclesiastic, Veguer, or Batlle can be elected ; the candidate must be both a native and resident of the vallies ; he must have attained his thirtieth year, must be married, and must be free from any such infirmity as blindness, deafness, epilepsy, &c. ; one that has been convicted of drunkenness is expressly excluded. The General Council is presided over by the Syndic, or President ; he is elected for life ; he convokes the assembly, presides over it, and executes its decrees ; he also represents it when it is not sitting ; he has also charge of the finances ; he is assisted in his office by one or two deputy syndics, elected every three years, who always represent him in his absence. The Council examines and audits the Syndic's accounts ; it takes cognisance of every public matter which affects the interests of the whole state. It has charge of the public roads, regulates matters connected with hunting and fishing, and exercises surveillance over all shops and factories. No ecclesiastical, or even industrial institution, can be opened in the Valley without its permission. The Andorrans have contrived, in their jealous fear of their independence being compromised in any interference with individual liberty, that all litigation arising out of questions of servitude should be decided by the General Council ; or possibly this practice may have originally grown up with the growth of the General Council itself, from the early times when it met in the open air, in the cemetery of the Valley, and there, in exercising in the simplest manner both legislative and judicial functions, would naturally decide any disputed point between a shepherd master and a refractory servant. The Council appoints a contador, or assessor for each commune, who, with the assistance of the local council

assesses, on the principle of an income-tax, what every proprietor or industrial inhabitant should pay towards the Quistia; this does not average more than a few sous, about twopence-halfpenny, to each individual; the surplus is paid into the treasury; the principal revenue, however, is derived from the sale of wood from the public forests, and from the proceeds of the grass land let in the summer. If the revenue of this little State is modest, the expenditure is still more so; the principal expense is the maintenance of public worship; the Bishop pays the Curé, or parish priest, so badly indeed, that he would starve upon his allowance, if it was not supplemented by the presents of his pious parishioners: but the State pays a Curate for each parish five or six hundred francs a-year, who, besides assisting the Rector, officiates as School-master. The Council also votes a small sum to three or four Surgeons, to induce them to practise in the valley; their minimum fee is fixed at six sous for a visit; the sum voted by the Council, I suppose, is considered an acknowledgment of such relief as they afford to the very poor, who may be unable to pay this very small fee. A small salary is also paid to the Concierge of the Palace; the balance is applied to the repairs of the churches and other casual expenses.

With regard to the army, theoretically every man in Andorra is a soldier, and liable to be called upon to take up arms, in case of any urgent danger to the State requiring a general levy. The practice is for each parish to appoint a few men, with a captain and two lieutenants; each man is required to keep a gun in order, and a fixed supply of ammunition; they are obliged to assemble for review once a-year; this takes place at Whitsuntide; they are liable to be called on at any time by the Syndic, the Councillors, and the Magistrates. They receive no pay, any more than the Syndic and the Councillors; all public services are gratuitous,

but the State provides rations for the soldier when on duty, and lodging when he is away from home.

During the last twenty years, the Republic became involved in a contention with the Spanish government which threatened to compromise her independence; this danger has however been happily escaped through the energy of the Andorrans, aided by the good offices of the French government. Some energetic graziers, wishing to become rapidly rich, began the practice of passing French cattle through into Spain, after they had been only a month or two on the Andorran pastures. This attracted the attention of the Spanish custom authorities, and led them to be denounced at Madrid as organising a wholesale system of smuggling. The governor of Lerida was ordered to proceed to the vallies; on doing so, he satisfied himself that the affair had been much exaggerated, and for the time settled the dispute by making a treaty, which fixed the number of cattle of each kind which might pass into Spain free of duty. This arrangement would have settled the matter finally, but at this conjuncture, his evil genius inspired one Sanches de la Campa, a licentiate of Lerida, to issue a libellous pamphlet, which excited a violent prejudice against the Andorrans, the effect of which was to retard for several years the confirmation of the treaty by the government of Madrid. This was granted in 1853. But the detractors of the poor shepherds still continued their intrigues, and ten years afterwards they succeeded in getting an order issued that neither cattle nor merchandise should be allowed to pass from the vallies into Spain. This decree naturally excited great alarm in Andorra; the Syndic was dispatched to Madrid; the ablest Spanish lawyers were engaged to maintain the cause of the Republic, and at the same time a deputation was sent to France to claim the protection of the sovereign; in the end the Andorrans prevailed, through the skill of their counsel, sup-

ported by the quiet pressure of the French government, and the treaty with the governor of Lerida was confirmed by a new decree of Queen Isabella II.

Since this affair the Republic has been exposed to a danger of a different kind, arising from the restless spirit of speculation. Some enterprising Frenchmen proposed the forming a company to make a grand watering-place at Las Escaldas. The Council were tempted to come to terms with the company, hoping that it might gradually bring wealth and improvement to the country, a part of the proposition being that a good road was to be made by the company over the mountains; on the other hand, there was a strong feeling of opposition, from the fear of the simple morals of the people becoming corrupted by the introduction of gaming on a meretricious scale, that being evidently the principal object of the speculators; after considerable opposition on the part of the older and more conservative of the senators, a concession was made to the Company, or rather the principle was conceded; but when the details came to be arranged, difficulties presented themselves,—as far as I could learn, particularly this one having reference to gaming,—which caused the whole project to fall into abeyance. In the interest of the simple and frugal inhabitants of the Vallies, we may be permitted to hope that this sinister project may never be revived.

Now that public gaming is likely to be abolished in the Southern States of Germany, if a refuge were afforded to its votaries in this secluded valley, the inevitable consequences would be, first the corruption of the manners of the people, and eventually the compromising of their independence. Let us hope that the Andorrans will rather seek to improve their circumstances and increase their means by applying modern ideas to their antique system of agriculture and horticulture, and by further exploration and development of

their mineral resources, which, there can be little doubt, are considerable.

Having obtained what information we could, during our brief visit, we prepared to retrace our steps, and on a beautiful August morning again mounted our steady hacks, and in single file wound our way through the steep and narrow streets of this most dingy capital ; but in a very few minutes were on the banks of the sparkling and buoyant Valira, which danced along on our right in its rapid course, almost washing the roots of the wild vines and fig trees that hung over its stream ; on our left a splendid cataract, several hundred feet high, tumbling down from the elevated valley of Ordino, and through a deep chasm conveying the waters of the upper vallies to the Valira. This chasm was spanned by a strong stone bridge, the only well built one we saw in Andorra. On every side gorgeous butterflies fluttering about in the sunshine, at every step crickets darting about, expanding as they took their short flight their light blue or scarlet wings. We observed far around us, on the sides of the steep mountains, the dark pine forests crowned by many lofty peaks, reposing against the clear blue sky. Numerous bee-hives, (in one place we saw about a hundred together,) made of a piece of a tree, about two feet long and about a foot or fifteen inches in diameter, hollowed out, and covered over by a broad slate, the bees going in and out under the slate or through cracks in the wood. These bee-hives were so numerous as to satisfy us that honey must be produced in Andorra in considerable quantities. With this beautiful prospect spread before us, we pursued our way cheerfully up and down the steep path by the river side for several hours, until, the sky becoming overcast, we had to push on to Soldeu to get shelter from an approaching thunderstorm. This detained us some time, so that when the sky cleared up, we were obliged to press on, for fear of being overtaken by night on

the mountain. As we ascended the zigzag approach to the summit a thick fog came on, which shut out everything from our view; but just as we reached the summit of the pass this cleared away, and we were enabled to take a farewell look at the valley, the visit to which had afforded us so much pleasure; there, as it lay before us, embosomed in the dark Pyrenees, far as where the lofty Rialp reared its magnificent cone against the western sky and setting sun, we gave our best wishes to its honest and simple inhabitants, praying that they may long enjoy that independence which they so justly prize, and that for ages yet to come they may present to the world the example of the very little that is absolutely necessary to a free people to make them think themselves the happiest of mankind. By hastening on we succeeded in reaching l'Hospitalet just as night closed upon us, evidently to the great relief of the guides, who appeared to dread very much being caught by night on the mountain. After partaking of some refreshment we succeeded in getting a vehicle and a pair of horses, which drove us down the beautiful valley of the Ariège to Ax, in one hour and twenty minutes; the ascent had taken us more than three hours. After our fatigue, the comfort of an excellent hotel was most refreshing; our jaded spirits, too, having been a little soothed by our hour's drive through this magnificent valley by moonlight.

For the particulars relating to the early history of the Republic of Andorra, I am indebted to a little pamphlet published in 1866, by M. Victorin Vidal.

OUR MEAT SUPPLY FROM ABROAD.

BY

THOS. J. HUTCHINSON, F.R.G.S., F.R.S.L., F.E.S., F.A.S.L.

On the 19th of February, 1868, a Paper was read before the Society of Arts, in London, by Mr. Wentworth Lascelles Scott, "On the supply of Animal Food to Great Britain, and the means proposed for increasing it."

Not the least pertinent idea of that Paper was embodied in a question proposed by its author for consideration by the Society, namely, "What experiments, upon a practical scale, should be instituted in order to determine the best method of applying the Bisulphite of Lime process to the importation of Meat from Australia, South America, and elsewhere, in a sound and wholesome condition?"

During the discussion ensuing upon Mr. Scott's Paper, Mr. Dixon, amongst other remarks, observed, that we wanted every head of cattle which could be brought from abroad; and concluded by saying, "he believed it was a matter of indifference to the foreign producers whether they sent the live animals or the carcasses to this country, so long as they obtained fair prices for their produce. *The great question*

was, to increase the supply of meat, both home and foreign. If the proposed plan of slaughtering foreign cattle at the spot where they were disembarked would prevent the risk of another visitation of disease, it was *the duty* of every Englishman to hold up his hand for it."

It appears to me, Mr. President and Gentlemen, not alone the duty, but *the obligation*, in a dietetic, as well as economic, point of view, regarding the sustenance and nutrition of our population. For in the possibility of Rinderpest or mouth and foot disease decimating your cattle, it might be no less important to ascertain if meat could be obtained from foreign countries, equal, if not, nearly so, in quality to what we have to search for a *succedaneum*;—and how far in difference ranges the respective cost of each?

Now, although the title of this Paper might lead you to suppose that it is intended to touch on the general supply of meat from all places abroad, my observations shall be limited to South America, with which I have been connected for the last nine years. I am also still affianced to that part of the world, hoping to proceed by mail steamer of next month, by command of Her Majesty, to Callao, in Peru.

The attempt made last year to bring live cattle from South America to England proved a signal failure, in the case of a cargo that was landed at Falmouth. In the Pacific Steam Navigation Company's mail steamer *Araucania*, on board of which I left Monte Video on the 11th of October last, we had nine head of cattle for the ship's provisioning. They were plump when hoisted over the steamer's side, at the last mentioned port; were placed in an airy and sheltered position on the deck; as well as supplied with food of "alfalfa" (clover) and fresh water every day. Yet, before they were many days on board, or more than fifteen hundred miles from the River Plate, they were nothing but hides, horns, and bones, with corresponding hoofs and

tails. I advance it simply as an opinion of my own, that the chiefest feature in the difficulty of bringing cattle alive from the River Plate, will consist in their not being acclimatised to a sea voyage, and change of atmosphere. Therefore, the loss of flesh which must necessarily result will stand in the way of its being successful in a commercial point of view, and, consequently, impracticable.

Scarcely two years ago, the Argentine Government, in South America, offered a prize of eight thousand hard dollars, or nearly two thousand pounds sterling, for the best mode of curing meat, in such a manner as that the article so cured should be fresh, as well as have the capacity to keep in a wholesome condition, for transmission to Europe, or *vice versâ*. There were several applications for it, none of which turned out even a chance for the prize. But amongst them was *not* that which has since succeeded so well, namely, the Bisulphite of Lime of Messrs. William Bailey and Son, of Wolverhampton. Beef immersed in this liquid for twenty minutes, and then packed up in barrels of fat, has been preserved at Rosario, my late consular post; and after being kept for more than three months, as well as crossed the Equator, arrived in England, not only as fresh in appearance and taste, but as sound in material, as though bought yesterday in Leadenhall, or St. John's, Market.

I may record here the following brief history of its introduction to that part of the Argentine Republic, wherein the Bisulphite has been crowned with such success. More than three years ago, a jar of it was sent out to me by Mr. Bailey; and Mrs. Hutchinson tested it without any failure, chiefly in preserving eggs and kidneys. On the receipt of another jar, about a year after, I had been for several months urging on some of the *Saladeristas* of Rosario to try it. But they were incredulous. Even Mr. Davison was at first, and for no

inconsiderable time, distrustful. But he experimented, and found its conservative efficacy to be incontrovertible. I then persuaded him to try the *modus operandi* which Mr. Bailey informed me had been successful in Australia, namely, of immersing the beef for twenty minutes in the pure Bisulphite of Lime, and afterwards packing it in fat. From this process have proceeded the following results:—

I sent to Mr. Bailey, on board the brig *Dowse*, to Liverpool,—sailing from Rosario on the 14th of June last, and consigned to care of Messrs. Wright, Kelso & Co., of Tower Buildings,—a barrel of beef prepared as I have mentioned, and packed in fat on the previous 20th of May by Mr. Davison, at his Saladero near Rosario. This, coming by a sailing ship, did not arrive at Wolverhampton till the 6th of October, having been thus one hundred and thirteen days on the passage, and being one hundred and thirty-seven days, or more than four months and a half, from the time of the animal being killed and its carcase prepared. As soon as I arrived in England, on the 11th of November, I enquired of its condition, and Mr. Bailey, under date of 15th November, thus replies:—"The beef you sent on the 14th of June arrived safely on the 5th of October, on which day it was opened, and found in PERFECT CONDITION,—as sweet and sound as possible,—not the smallest trace of taint or decomposition. From that day until the 12th instant it was lying exposed, without any further Bisulphite, and daily examined and tasted; it had not the least flavour or smell of the Bisulphite; in fact, I intended to keep some for yourself to see and examine when you came here, but, unfortunately, our cats got to it, and ate up all that was left."

There are two important points in this letter,—the first, that of the meat being exposed to the atmosphere from the 5th of October to the 12th of November, without undergoing any deterioration; and the second, which proves the premises,

that it was eaten up by cats. I must confess myself not sufficiently acquainted with the professional gentlemen of the cat's-meat provisioning order to feel justified in asking the opinion of any of them on the subject, but I have an impression that the fact of cats having eaten it is a very cogent argument in favour of the meat being free from chemical odour or taste, or the slightest suspicion of putridity.

At Mr. Davison's Saladero, near Rosario, again, on the 10th of August last, were prepared, at my suggestion, several small barrels of beef, of the success whereof we have the following proofs. In the *Buenos Ayres Standard*, of 18th September, you can see a report of one of these barrels being opened at the Royal Mail Packet Company's office in that city, on the day previous. Of this the Reporter says:—

“Upon Mr. Davison opening the cask, which did not seem to be air-tight, he broke through a layer of grease and pulled out a roll of beef, technically called by Saladeristos a *manta*, with fat and lean well mixed. The meat and grease smelled quite sweet, and the beef, which looked somewhat dark on the outside, was no sooner cut than it showed the healthy colour of meat just killed. It was full of rich juice, and totally free from any smell or appearance of chemical preparation. In fact, when put on the table in its raw state, it could never be recognised as preserved beef, and looked much better than the ordinary beef we see exposed in the markets for sale.

“There was but one opinion among the by-standers as to the quality of the meat, and the successful mode of preparation.”

Of the small bit cooked the Reporter describes:—

“It would have been impossible to distinguish the beef-steak cooked by Mr. Benn from what may be found in a London coffee house. Of all the samples of preserved beef that we have seen opened in Buenos Ayres, coming from England and elsewhere, we have seen nothing equal to the

present; that of Mr. Ledingham from Glasgow was the nearest, but it had the smell of the chemical preparation."

And it is therefore summed up:—

"In giving our unqualified testimony of approval as regards the success of Bailey's system of beef-preserving, we would call special attention to the salient points which constitute its chief merits. 1st. The preparation is simple, cheap, and efficacious, not requiring air-tight vessels for reception of the meat. 2nd. There is not the faintest trace of chemicals, and the meat is offered for sale exactly resembling beef just killed. 3rd. The meat will keep several months good for use, though exposed to the air. 4th. It can be sold to retail dealers in England at a much lower price than the usual market rates, and yet leave splendid profits for those who engage in the industry on this side of the water."

These opinions were confirmed by the following statement, made and signed by the persons who were present:—

We the undersigned, having been invited by Mr. James G. Davison to assist at the opening of a barrel of beef preserved according to a new system, certify that the barrel was opened in our presence, and contained a 'manta' of beef, which presented the appearance of meat recently killed. The barrel bore the date of August 10th, and the seal of H.B.M. Consul at Rosario. On proceeding to cook a piece of the meat, it had the taste and smell of fresh beef just taken from the grid-iron. As this is a matter of much interest to the country, we hereby offer Mr. Davison our warmest congratulations.

Buenos Ayres, Sep. 17th, 1870.

Luis Casalla, Epamisonda Abate, William Hadfield, Franco Carbó, John Hughes, Luis Bianchi, Agustin Repetto, Cipriano Ponce, Francisco Crespo, O. V. Andrade, Emiliano Ferreyra, Domingo Fernandez, Chas. W. Benn, Carlos D. Alejandro Cerez, C. W. Humphreys, José Maciá, Juan Antonio Fernandez, jun., McKenzie, Orosimbo Perez, M. G. Mulhall.

Here we have twenty-one spectators, including Mr. Abate, who, at the time, had just been soliciting from the Argentine government a few million of dollars for some discovery of his own in preparing petrified beef.

In order to carry out the experiments to a position beyond doubt, I called on Mr. Edmund Oliveira, President of the Argentine Rural Society, at Buenos Ayres, and asked him to let us have another trial, in presence of a committee of that Society at their rooms, to which he courteously assented. The 6th of October was fixed upon for the second experiment, of another small barrel of the beef, cured on the 10th of August, and of this we find the following account in the *Buenos Ayres Standard* of October the 9th :—

THE ROSARIO PRESERVED BEEF.

Yesterday some thirty or forty gentlemen, mostly estancieros, attended at the Sociedad Rural, Calle Peru, to witness the opening of another cask of the beef preserved at Davison's Saladero, Rosario, of the same lot as that opened last month at the Royal Mail Packet Company's Office.

After tasting the Rosario beef, the following document was drawn up :—

Argentine Rural Society,

Buenos Ayres, 6th October, 1870.

We, the undersigned, certify that on this day has been opened in our presence a barrel of fresh beef, preserved by an especial system of conservation.

The beef was prepared by Sr. Diego Davison, at his Saladero, in Rosario de Santa Fé, on the 10th of August last, being thus fifty-seven days in preservation.

The material of preserving was given to Mr. Davison by Mr. Thos. Hutchinson, H. B. M. Consul in Rosario, who obtained it from the inventor, resident in England.

The beef, in its raw state, presented a good appearance and fresh

condition, and, when cooked, the spectators found it of good taste and eatable. In faith of which we attest.

EDMUND OLIVEIRA,

President of Rural Society.

Mariano Atucha, Luis Bilbao, Ireneo Anasagasti, Felix Lynch, Nicanor Oliveira, J. J. Andrada, Manuel Guité, Jose Atucha, Rafael Fernandez, Rodolfo E. Mendizabal, Juan A. Fernandez, Auguse Krausse.

Although fifty-seven days might be considered sufficient to prove the efficacy of the process, I brought with me to England a small barrel of the same beef, preserved on the same 10th of August, in order, chiefly, to test its resistance to equatorial heat, in crossing the line; and the result of this last trial is set forth in the ensuing documents:—

The following Certificates, and paragraph from *The Times* newspaper, will be read with much interest at the present, as bearing on a nationally important subject:

Certificate of H. B. M. Consul at Rosario, respecting the preparation of the Meat.

“I certify that the Meat enclosed in this barrel was, in presence of me, prepared and barrelled up on the 10th August last, 1870, since which time I can also certify it has not been opened, nor in any way tampered with

“Given under my hand and Seal of Office, at Rosario, this twenty-fourth day of September, 1870.

(Signed) THOMAS J. HUTCHINSON,
H. B. M. Consul.”

In presence of

(Signed) JOHN THOMPSON,
H. B. M. Acting Consul.
(Signed) SAMUEL A. WHEELWRIGHT,
U. S. Consul.

*Certificate of the Consul-General of the Argentine Republic in London,
as to the condition of the Meat when the Barrel was opened one
hundred and nineteen days after the animal was slaughtered.*

"Consulate General of the Argentine Republic,

1, George Street, Mansion House,

7th December, 1870.

"The undersigned, Consul-General of the Argentine Republic, hereby certifies that a Barrel of Beef, which had been sealed at the Port of Rosario, in the Argentine Republic, by T. J. Hutchinson, Esq., Her Britannic Majesty's Consul at that place, on the 10th August last, was opened this day in London, in his presence, and found to be perfectly fresh, both in quality and appearance, and free, so far as he could detect, from the slightest peculiarity to distinguish it from ordinary household meat.

(Signed) M. B. SAMPSON,
Consul-General."

Extract from "The Times" Money Article of the 10th December, 1870.

"There was a trial of Preserved Meat from Rosario, in the Argentine Republic, in the City, on Wednesday, with, it is stated, most satisfactory results. The preparation was effected by immersion in a solution of Bisulphite of Lime, according to the process of Messrs. Bailey and Son, of the Horseley Fields Chemical Works, Wolverhampton, and the meat was sealed up in a cask in the presence of Mr. Hutchinson, the British Consul at Rosario, on the 10th of August last, and brought by him to this country in a recent steamer. It had, therefore, been kept four months, and had made a passage across the Line, yet was found perfectly fresh, not only in quality, but in appearance, and was deemed by the persons present at the trial equal to any good ordinary home beef. Among these persons were merchants largely interested in the commerce of the River Plate, by whom an unqualified conviction has since been expressed, that the problem of bringing unlimited supplies of animal food from distant regions will now prove to have been solved, the method being alike simple and inexpensive, and capable of being adopted under any circumstances. At the trial on Wednesday, not the slightest flavour of any chemical or other artificial agent was detected."

The meat was cooked at Simpson's, Bolt Court, Cornhill, and was partaken of by the above-mentioned gentlemen, together with Consul-General Neill, of the Uruguayan Republic, as likewise by influential merchants and gentlemen, interested in this question.

To which the *Liverpool Albion*, of December 12th, gave its corroboration in the following words:—

“On Wednesday, the 7th instant, at Simpson's tavern, Bolt-court, off Cornhill, in presence of the Argentine Consul-General, (Marmaduke Sampson, Esq.,) of the Uruguayan Consul-General, (E. B. Neill, Esq.,) of H.B.M. Consul Hutchinson, late of Rosario, and several other gentlemen, a barrel of beef was opened that had been preserved with Bailey's Bisulphite of lime, and barrelled up in fat. It was certified to by Consul Hutchinson as having been prepared in his presence, from an animal killed on the 10th of August last, and thus bore the test of one hundred and nineteen days' preservation, as well as a voyage across the line. So good, and fresh, and free from all taste of chemicals was the meat, that Messrs. Sampson and Neill declared themselves as converted from a prejudice they had previously entertained against such experiments. Some of it was cooked, and brought in floating in its own gravy. Beef of this quality can be sold in England for 4d. per lb.”

There are three principles indispensable for the success of Meat importation from either Australia, or South America.

First—That it have a good appearance; for unless it be presentable to sight, the poorest housekeeper will not buy it.

Second—That it be of nutritious quality, and have no taste of chemicals.

Third—That it can be sold here at from 4d. to 5d. per pound, and at this price be commercially remunerative.

All the experiments mentioned by me have proved the realisation of the first and second of these propositions. The

third may be considered as equally indubitable, when I tell you, that the animal from which this rich beef, examined and cooked on the 7th of December last, at Simpson's in London, had been taken, was part of the carcase of an ordinary bullock, killed at the Saladero for its hide and fat; that such animals can be bought at from £2 to £2 10s. per head—animals of from three to four years old, and with a weight of four hundred pounds of meat; that the hide of these beasts is worth nearly a pound sterling; and that as the curing would not, Mr. Bailey tells me, exceed the cost of two pence per hundred pounds in weight,—the profits of such a trade are at once obvious. “This two pence per hundred pounds could not of course be calculated at the sale price of three shillings and sixpence per gallon,” Mr. Bailey adds, “unless with twenty-five per cent. discount, which would have to be allowed to any company purchasing his patent rights.” Then the expense of the Meat, as well as the packing, and the freight to England, must leave a very handsome profit at four pence per pound.

It likewise stands to reason, that such a contract as that made in August last, by the Admiralty, with the “Melbourne Meat Preserving Company,” for the supply of one hundred and seventy-five thousand pounds of Preserved Beef, and forty-two thousand pounds of Preserved Mutton, should be done for at least one half of the expense to Her Majesty's government in the part of South America from which this has come. For a main item—the cost of freight and carriage—could not be more than one-half from the River Plate of what it would be for double the distance—from Australia.

I hope it will not be considered irrelevant to the general subject of meat curing by the process under consideration, to refer to the change that may be made by this important agent in connection with our Marine. From the tenth edition of a pamphlet on the subject, published by Simpkin,

Marshall & Co., London, and wherein all the directions for the use of the Bisulphite of Lime are set forth, it is observed :—

“We have not touched upon the food-supplies of our naval and mercantile marine as affected by the adoption of the new process; indeed these pages are necessarily far too circumscribed to do justice to this important section of our subject; suffice it that, among many other advantages, Mr. Bailey’s new invention affords the means of supplying every sailor, without exception, with fresh unsalted meat at all times, be the voyage a long or a short one; and this, too, without the necessity of diminishing cargo-space by carrying living animals.

“The same with passenger ships and steamers. At present, on many lines, the number of passengers that can be taken is seriously diminished by the cattle, sheep, pigs, poultry, &c., carried for slaughtering on board; to say nothing of provender for them, the necessity for which is of course obvious, while its practical result is to increase the cost of the animals to fully two and a quarter times—in other words, live animals to the value of £100 involve expenses, for their food only, amounting to an additional £125 before they are consumed. Even when living animals *are* carried, waste cannot always be prevented, as they must be killed before they are cooked, and a sudden change of weather may “turn” any quantity of meat in a few hours: an instance of this has occurred quite recently; for we learn from a passenger by one of the ‘Panama, New Zealand, and Australian Royal Mail Company’s’ steamers, that during the homeward voyage, an entire bullock, a pig, thirteen sheep, twenty-five turkeys, fifty ducks, and upwards of eighty fowls, were completely spoiled, and the whole of which had, in consequence, to be thrown overboard. In future, joints and carcasses, treated according to the new method, and packed in cloths, barrels, crates, cases, &c., must replace the “unruly live stock,”

while occupying about one-tenth the space. This plan also completely doing away with the cruelties to which the animals are frequently subjected under the present system."

In conclusion, I shall add my own conviction from repeated experiments on it in Rosario, as well as from the proofs I have submitted to you, that the Bisulphite of Lime, *properly used*, has achieved, and will continue to achieve, what Mr. Sampson describes—"that the problem of bringing unlimited supplies of animal food from distant regions will now prove to have been solved, the method being alike simple and inexpensive, and capable of being adopted under any circumstances."

This opinion is fortified by an analysis of some of the very last specimen opened, of which we have the ensuing report from a well-known chemist, Mr. Wentworth Lascelles Scott, F.C.S., &c. He says, under date of 6th January, 1871:—

"I have chemically examined the remaining portions of the beef from Rosario, certified by Mr. Consul Hutchinson to have been put up on the 10th of August last, and which was opened in London on the 7th of December, 1870; and I here record my opinion, that the said meat, after the expiration of a period of not less than one hundred and forty-five days from the date of Mr. Hutchinson's certificate, and twenty-five from the time of opening the cask in this country, was perfectly sound and fresh.

"Beyond a slight darkening of the exterior surfaces, no difference was perceptible between the preserved and ordinary fresh meat. On cutting into the former, this slight difference ceased to exist, as the texture and colour of the Rosario beef, after a surface-slice of one-twelfth of an inch in thickness had been cut off, corresponded, in the most perfect manner, with that of fresh meat which had been 'hung' for three or four

days in a cool place. Under a magnifying power of one hundred and twenty diameters (or, popularly, nearly fifteen thousand times), the arrangement of the syntonine fibres was seen to be *perfectly natural* and regular.

"After hanging for twenty-four hours in a current of air, the meat was again examined, with a like result as to its physical soundness and character. No abnormal taste or odour, in either the raw or cooked portions experimented upon, was exhibited; and, in further proof of this, I may state that some of the meat cooked, by roasting and boiling, was partaken of by nine persons besides myself, two of such persons being under the impression that some fresh beef tasted by them at the same time was the 'preserved,' and that that from Rosario was the fresh sample for comparison.

"As might naturally be expected, the Rosario beef, on analysis, shewed a higher per centage of water than average English samples, by about three per cent., the mineral matter being, however, somewhat higher also.

"The proportion of nitrogenous matter, 12.67 per cent., I cannot but consider as an index of the high and satisfactory nutritive value of the meat.

"The last point of interest which I will name here in relation to the meat before us, is simply this:—It was found, on actual trial, to be capable of producing '*Extractum Carnis*' of good quality, yielding nearly two per cent. of its weight of this preparation in my hands.

"I hereby certify the exact accuracy of the foregoing statements.

"WENTWORTH LASCELLES SCOTT,

*Consulting Analyst; Member and
Medallist of the Society of Arts;
Author of 'Food, its Adulterations
and the Methods of Detecting them,' &c., &c.*

Thus, it appears to me, Mr. President and Gentlemen, that "the meat supply problem is solved," leaving to English enterprise—be it employed in Australia or South America—to bring good, sound, and nutritious meat to Great Britain or elsewhere; and meat that, whilst it can be sold for less than one half the price which at present obtains in the market, is certain to realise a splendid profit to all engaged in its preparation.



A SHORT ACCOUNT OF SOME INCIDENTS OF THE PARAGUAYAN WAR.

BY

THOS. J. HUTCHINSON, F.R.G.S., F.R.S.L., F.E.S., F.A.S.L.

THERE appears to me little doubt, that not the least exciting cause of the Paraguayan War (which was initiated about the middle of 1864,* and only terminated on the 1st of March last year, by the death of the Paraguayan Field Marshal at the battle of Aquidaban) was mutuality of national animosity, strengthened by Brazilian pride on one side, and the hereditary ambition of Lopez on the other. That it should have been a war of races need not be wondered at, when we remember a fact recorded by the German writer, Martin Dobrizhoffer, that “In the space of one hundred and thirty years, ten millions of Indians were slain or carried into captivity by the Mamelukes of Brazil, and more than one thousand leagues of country, as far as the River Amazon, was stripped of its inhabitants. From a letter* by the King of Spain, in 1639, it appears that in five years, three hundred thousand Paraguayan Indians were carried away into Brazil, by these Mamelukes, and sold as slaves.” I may here explain that the

* The official beginning of the war dates from 5th of March, 1865—the period of proclamation of President Lopez.

Mamelukes were mulattoes of Portuguese, Dutch, French, Italians, and Germans on the fathers' side, and Brazilian women on the mothers'. They were a lawless tribe of brigands, celebrated for skill in shooting and robbing, ready for any daring enterprise—"and thence," says Dobrizhoffer (although *whence* is rather puzzling to me), "distinguished by the foreign name of Mamelukes."

The Paraguayans who inhabited this little Mediterranean of South America, shewn on the map, were descendants of the original Spanish settlers here of the fifteenth century, and—in their mixture with the Guarani, Payaguas, Chiriguanos, and other Indian races—of the very peoples, who had been slain or carried off by the Mamelukes, and sold into slavery in Brazil. Mutual animosity appears thus easily accounted for.

The chiefest of those tribes, from whom the Paraguayans are descended, is supposed to be the Guarani. "And they," we are told by De Azara, "at the time South America was discovered, peopled the South Western Coast of the Rio de la Plata, from Buenos Ayres to Las Conchas, and continued on the same coast, without occupying the opposite side, through all the islands of the Parana, and to a distance of about sixteen leagues inland from the river's side, up as far as 29° or 30° of latitude. From this point, they were found on the opposite or North Eastern Coast to 21° of latitude, without being on the Western side at any place. They extended in the direction of the tropics as far as the sea, occupying the whole of Brazil, Cayenne, and even more." It is in a curious amalgamation, or dovetailing of these different races, that we find the language of the modern Paraguayans to be derived from the Guaranis,—the name of their country from the Payaguas,—while much of their manners and customs, as well as physical structure, seems to be engrafted upon the Chiriguanos and other Indians, as well as the two first mentioned (Guaranis and Payaguas).

The incidents of the Paraguayan War, Mr. President and Gentlemen, which I purpose to bring under your notice to-night, are as follow :—

First,—To prove to you, that the newspaper reports and telegrams, published by the allies, during the five years of its continuance, in regard to the cruelty and tyranny of the late President Lopez, were nearly all grossly exaggerated, and in many cases without the slightest foundation.

Secondly,—To shew you, by accredited narratives of acts of bravery, that the Paraguayan soldiers, as well as citizens, proved themselves possessed of courage, indomitable even unto death.

In the month of January, 1865, a small steamer, called the *Ranger*, was sent up by the Brazilian authorities in Buenos Ayres, to communicate with, as well as bring supplies and correspondence to, their forts at Cuyaba, Coramba, and other ports of Brazil, in the upper waters of the river Paraguay.

This steamer was commanded by a North American gentleman of my acquaintance, Captain Harrison. On board of it, besides the master and crew, were, only as passengers, Captain Parish, R.N., brother of my colleague at Buenos Ayres, who was an invited guest of Captain Harrison, and a Brazilian purser, charged with some commission from his government. As soon as they had entered the limits of Paraguayan territory at the Tres Bocas, or three mouths (which you can see by the map is the point of union of the Paraguay River with the Parana), the purser got into a shivery-shakery condition,—now and then looking with timid glances over the ship's side towards the Paraguayan shore, and locking himself up in his cabin whenever the anchor was let down at a Paraguayan port. The steamer stopped five days at Corumba,—the highest port reached,—during which the purser never went on shore, and never

failed, when a Paraguayan of any degree came on board, to retire to his cabin and lock the door. Yet, although he did not budge out of the steamer whilst she was up in the river Paraguay, he had no sooner returned to Buenos Ayres than he wrote a letter to the newspapers, stating that he had seen in the streets of Corumba (wherein, I need scarcely repeat, he had not put his foot) Paraguayan soldiers walking about the town, wearing necklaces made of the ears of Brazilians, which had been cut off, after the last-named had fallen in battle. This atrocious calumny was at once contradicted by Captain Parish and Captain Harrison, as regarded the fact of the purser not having gone on shore, and therefore not having the opportunity of seeing such a thing if it existed. Whereas Messrs. Parish and Harrison, although both in the town every day, saw nothing of the kind.

All through the war, for five years, the public, not only in England, but over the world outside the actual scene of operations, were told stories of wholesale massacres, as in the list published by Resquin, of Lopez ordering the Bishop of Asuncion and his brothers to be shot, as well as having his sisters and mother tortured. Even that venerable lady, who was executed several times, as well as hanged herself in the year 1868, was alive and well four months after the death of Lopez and termination of the war, when I was in Asuncion last July twelve months. And Vice-President Sanchez, too,—of whom the Argentine Government published, in 1867, a detailed account, as having been found in a wood—“*his body riddled with bullets and disfigured by torture*,”—was alive and active in his official duties, (as related to me by General M'Mahon, United States Minister at Paraguay,) for two years and a half after that body was so found; and was only killed at the general massacre in the final struggle at Aquidaban.

I may be asked, as I have been asked, how these state-

ments of mine can be reconciled with the accounts published by Colonel Thompson, Mr. Masterman, and the Hon. Mr. Washburn, Minister for the United States in Asuncion, at the time of the so-called Washburn conspiracy. Gentlemen, I do not profess to claim the character of peerless amiability for Lopez, or to advocate the cause of any South American chieftain; for their tendencies all lie in the like rôle of despotic republicanism. My only desire is to arrive at the truth. But when I know that scores of people, reputed as having been slain by order of Lopez, are still alive; when I remember that Colonel Thompson and Mr. Masterman, both British subjects, by entering into the service of Lopez threw off their allegiance to Her Majesty, and, after remaining there for from seven to ten years respectively, without discovering this tyranny, all at once came to find themselves disappointed in the aims with which they probably entered the service; when I find that the Hon. Mr. Washburn confessed, in a despatch to Hon. Mr. Stuart, our Minister at Buenos Ayres, which was published in the *Daily Standard* of that city, that he had gone to Paraguay with the intention of inciting a rupture between the United States Government and Brazil, to help Lopez, and that he afterwards turns round, on being accused of implication in a conspiracy, to lay charges of cruelty against the Paraguayan President; I come to the conclusion that very many of these accusations against the last-named must be taken with frequently repeated doses of the proverbial grain of salt.

During the whole period of this unequal war,—of one Empire and two Republics against another Republic,—the Paraguayan river was so blockaded for five years, that no communication of the Paraguayan people with the outer world was possible. Yet they fabricated their own guns, ammunition, and steamers; ploughed the land; cultivated produce; sowed cotton; made their own clothes; had their

railroads and their telegraphs. And, as a proof that the fine arts were never neglected in Paraguay, I hold in my hand a gold-bound album, manufactured, in every bit of its material, at Asuncion, with an address of confidence by the nation to President Lopez, bearing date the 30th August, 1866—or four months after the allied armies had entered into Paraguayan territory. There was a companion to this, presented by the ladies of Paraguay; but in the fatal fortunes of the war it fell amongst the “loot” that came to the share of the Brazilians.

One of the first instances of Paraguayan bravery of the kind I have mentioned, which came to my personal knowledge, occurred on board the British gun-boat *Dotorel*, Commander Johnson, R.N., when she was passing by Rosario, in the first week of July, 1865, with some wounded Paraguayans, who had been rescued by this humane officer from the wreck of the steamer *Marques de Olinda*. These poor fellows had suffered very much, after their vessel (which was formerly a Brazilian craft) had been drifted on the Gran Chaco shore, subsequently to the naval battle of Riachuelo, on 11th of June, 1865. Fifteen were in the *Dotorel*, of whom twelve were seriously wounded, and cared for in beds that were on the deck. One of them had a portion of his skull fractured by the falling of a spar; another suffered amputation of his arm by the *Dotorel's* surgeon on the way down; a third had his abdomen pierced by a rifle ball, and was in the excruciating agony of peritonitis (inflammation of the bowels); whilst a fourth was to have his leg cut off at Rosario, in order to stop gangrene. And it was to assist the doctor in this operation that I went to the gun-boat.

I was not long in the *Dotorel* before I learned, that since having received their wounds, they had been four days and nights on the *Marques de Olinda*, living on biscuits and water. That hapless steamer had her boiler burst; her

commander, who was a brother of the Paraguayan general, Robles, had been taken on board one of the Brazilian gun-boats, where, it appears, from the effect of wounds, he died a few days afterwards; and her engineer had drifted himself on a small raft to an Italian schooner, that lay about half-a-mile lower down. She was, therefore, in every sense a complete derelict, when the *Dotorel* rescued her mangled crew.

Whilst waiting for the doctor to complete his arrangements for the operation, I saw the Paraguayan sergeant, who had command over them, approach the bed-side of the man suffering from inflammation in the bowels, now groaning with much pain. One word uttered by the sergeant stopped the complaints. Then the same official pronounced a harangue in Guarani, and which the pilot on board translated for me as follows:—"Dog of a bad Paraguayan! are you not ashamed to let the enemies of your country hear you complain, and give them reason to laugh at you? The glory of having been wounded fighting for that country does not appear sufficient, without crying for sympathy in your sufferings! Do not let me hear another groan from you, or I shall report you to the highest power,"—meaning of course Field-Marshal Lopez. From that moment the poor sufferer never uttered a moan, although he died in four hours afterwards, evidently in dreadful torture.

Some Argentines, who were on board,—no doubt those described as "*enemies of his country*,"—called this "Paraguayan stolidity or stupidity;" but to me it seemed the perfection of discipline, joined to the highest class of moral and physical bravery.

The death of Commander Robles, mentioned in this case, was not less characteristic. He had fought at the battle of Riachuelo against tremendous odds; had been wounded in many places; and, when transferred to the Brazilian gun-boat before mentioned, was insensible. Thus he remained for

from ten to twelve hours, during which time the Brazilian surgeons tied his severed arteries, and bound up his wounds. But when reason and consciousness again began to dawn,—when he looked round him, and, asking where he was, found himself a prisoner in the middle of Brazilian uniforms,—he laid back his head with a groan of passive despair; then for a moment or two seemed reflecting, and, without a word of complaint or warning, tore away the ligatures from his arteries and other wounds, and in a few moments was a dead man;—saying, practically, in the words of the Latin motto, *Malo Mori quam fœdari*—“I prefer to die rather than be dishonoured.”

Not less emphatic in spirit than the incident last mentioned, is the story told of a Paraguayan soldier, at the recapture, by the Allied forces, of Corrientes, on the 25th of May, 1865. This man was left in a position as sentinel, when he was surrounded by more than a score of Allied soldiers. With rifle erect, and bayonet affixed, he stood unmoved amid the crashing of bomb-shells and falling of the dead and wounded. Being called upon to surrender, he refused, pointing his bayonet to defend himself, and without moving from his post, said, “*No tengo ordines*”—“I have no orders to do so.” But his assailants, not appreciating the sublime sense of duty entertained by the faithful fellow, overpowered him by superior force, and killed him on the spot. In my last work on the Argentine Republic, there is a portrait of this man.* I have often thought how the Duke of Wellington would have appreciated this noble soldier's sense of duty.

In that same work, at page 309, is the *carte-de-visite* portrait of a naked-legged Paraguayan, with no clothes on him save a poncho and a cap. His hands are tied behind his

* At page 303 of “The Parana, with incidents of the Paraguayan War,” &c., published by Stanford, 6, Charing Cross, London, 1868.

back, for he is a prisoner; and I read, on the face of the original of his picture, "Sergeant Gonzalez, a Paraguayan, who fought alone against TEN Brazilian soldiers, but at last surrendered by force of persuasion. And, when asked why he fought against such unequal odds, and with so little hope of success, replied, 'I fought because I am valiant, as are all Paraguayans.'"

Equally characteristic of dogged obstinacy and determination, as recorded in the foregoing, is that of which we are told on the 7th of March, 1868, subsequent to the passing of Humayita, when the Baron de Imhauma reported an attack by a fleet of canoes on three monitors, that had proceeded up. This consisted of forty-eight canoes, lashed together by twos, with twenty-five men in each, as reported by Colonel Thompson and the Baron; but, as I am informed, by an authority who was on the spot, only sixteen canoes, containing fifty men each. Fourteen of these assaulted, whilst twenty of their occupants boarded, the monitors *Lima* and *Barrios*, and twelve the *Cabal*. The crews of these ships went below, and, fastening the hatchways, kept the invaders on deck. Then the monitors *Silvado* and *Herval* bore down, sweeping the boarders from the decks of the others, with destructive grapeshot. The Baron's report continues:—"The *Herval* and *Silvado* killed a great number in the water, who had thrown themselves overboard, when I attacked the iron-clads that had been boarded. I endeavoured to save some, ordering boats to be lowered for that purpose; but they refused any help, and preferred to die."

In the Baron's report, there is, however, no mention made of the commander of this daring canoe expedition, Major Ignacio Genes, the hero in question, who, as I am assured by one well cognisant of all the incidents of the war, escaped, although presenting to-day at Rio de Janeiro sixty-one wounds in his body, with the loss of an eye. Having no

use of limb free from wounds, except that of the left arm, he swam by its help to the Gran Chaco shore, and returned to the Paraguayan side by aid of the same. It was only towards the end of the war that he was taken prisoner.

There are two incidents of this war, come to my knowledge, that go to prove the high humanitarian feeling of the Paraguayan people. No doubt hundreds of others could be elicited, if such pains had not been taken to smother and suffocate every act that could reflect credit on these brave South Americans. One is shewn in a rude sketch, roughly drawn out for me by an Argentine Officer, who was witness of the fact. A Paraguayan soldier, passing through a morass, recognises the body of a dead brother, and, dismounting, knelt down to say a prayer for him, and to bid him, what the sketch is entitled, "a last good-bye." The other occurred in 1868, when among the dead Paraguayans, in the action of 8th of May, in the Gran Chaco, was found an old woman dressed in soldier's clothes shot, by the side of a young man, also killed, whose head she was holding in her withered hands, and who was supposed to have been her own son, from a resemblance in the features of each. The latter was clutching his rifle to his side with one arm, whilst the other was turned round the neck of the old woman. The picture was a sad and pathetic one.

Although I could adduce numberless incidents of a similar kind, still, as my time is limited, I conclude with the following remarkable item of Paraguayan bravery, intrepidity, and unwavering martyrdom. On my passage home, in the *S. S. Araucania*, last October, I was told by Don Miguel Lisboa, son of the Brazilian Minister at Lisbon, and then *en route* for a visit to his father, of the following incident.

When the Allied troops had gone by the coast to the Gran Chaco, opposite to, though lower down than, Humayita, they made a circle of sentinels round the outskirts of the fort,

to cross the river and prevent means of communication on either side with the capital of Asuncion, as marked on the plan chalked out before you. On the 14th of July, 1868, and whilst Colonel Allen was in command of the garrison of Humayita, a man was sent across the river with a message to the commander of Fort Timbo, to have it forwarded by telegraph to Asuncion, to President Lopez, informing His Excellency that the garrison was still able to hold out, in spite of the previous week's hard fighting in the Gran Chaco, and that he therefore need not be uneasy. Circumvented, as you may see by this, though the journey was, there were volunteers for it. One was confided in by Commander Allen, and when you hear of his fate, you will regret that his name has not been handed down to posterity.

After crossing the river, he had to skirt along and partly to cross a laguna or lake, at the upper end of which were stationed three Brazilian sentinels,—one on dry land, another up to his waist in the water, the third up to his neck,—at distances of three to four yards from each other. It was about two o'clock in the morning, and, July being the middle of winter time out there, the position of these sentinels was not an enviable one. The shadow of a man was seen gliding by, but perfectly noiseless. The usual Spanish sentinel cry of *Halto, Quien vive?*—or, “Hold on, who is that?” elicited no reply. All three simultaneously fired. Not a sound ensued; no cry, nor groan; no splash in the water, or noise of anything falling. The sentinels again loaded, the man on dry land doing the charging business for his comrades. When morning dawned they saw, at a distance of about twenty yards off, a dead Paraguayan, with his body half in the water and half out of it on *terra firma*. Going to examine it, they found the calf and thigh of one leg eaten off by a Yacaré, or Paraguayan crocodile, and that, although dead from a wound

in his breast, caused by one of the rifles fired by the sentinels, he held, firmly clutched in his hand, and pressed to his heart, the message of which he was the bearer. It was jotted down in the characters of Morse's telegraph-puncturing, and was to the effect already stated, to assure President Lopez, though it never reached him, of the fidelity of his garrison. He was a man of about forty years old; and the wonderful command over his sentient faculties, after receiving a mortal wound,—to utter no cry, or to make no noise in falling, but still struggling on to his duty, seems to me an unparalleled piece of fortitude, amounting to martyrdom. To the credit of the Brazilians, they buried him on the spot where he fell, and put a board over his grave, with the simple inscription, "Here lies a brave man!"

The devotion of the Paraguayans to President Lopez was something marvellous; and the wonderful labours of the Jesuit Fathers had impressed them with the most unswerving idea of duty. On one occasion seven or eight Paraguayan herdsmen were surrounded by a regiment of several hundred Brazilians, forced into a pool of water, and, when called on to surrender, refused, saying, "We have no orders to do so."

Yet to prove to you in what light these people were misrepresented by the head of a sister Republic, I may add, from a note of the Paraguayan Government to that of France, first sent in 1843, and again repeated in 1854, it appears that Rosas, the Dictator of Buenos Ayres had in 1843 represented, by medium of his official organs, that "the Paraguayans were a race of idiots, incapable of forming an independent nationality." If the idiotcy of these people was on a par with their courage and devotion to their chief, we can easily guess at the worth of a South American's character of his neighbour. But we have the Buenos Ayrean people themselves contradicting this character of the Paraguayans, given by their President Rosas, in an address presented to the late President Field-Marshal Francisco Solano Lopez,

under date of 12th November, 1859, when he was Minister Plenipotentiary at Buenos Ayres for the Republic of Paraguay—at the time of his father, Carlos Antonio Lopez, being at the head of the Paraguayan Government. This address is quite an historical document, for it says:—
“The town of Buenos Ayres dedicates this testimony of gratitude and respect to his Excellency, Brigadier-General Don Francisco Lopez, Minister Plenipotentiary of the Republic of Paraguay, to whose friendly interposition it owes the saving of the blood of its sons, the happy peace which it now enjoys, and the reunion so long desired of the Argentine family. Our best wishes will always accompany the illustrious Mediator, as well as his Excellency Carlos Antonio Lopez, and the Republic he represents, whilst our thanks for so very great a service will be eternal.”

The duration of eternity in the modern Athens, as the Porteños entitle their city, may be esteemed by the fact that in a very few years after, or in 1865, the name of this same Lopez was placed on the shelf in ordinary conversation with a certain personage down below, who is accredited to preside over “the pit that is bottomless,”—in plain words, the Devil. And a curious anomaly in the fortune of war appears in the fact that, amongst the names to this document are those of President Mitre, Commander-in-Chief of the Argentine Army in the time of the war just described, as well as many of his officers, and of various British merchants in Buenos Ayres. Mr. President and Gentlemen,—I trust you will believe that my sole motive in composing this paper, and bringing these facts before your society, is to protest against the system carried on against Lopez during this war, of “Hit him again, for he has no friends,” and “When a man is down, down with him.” It is unmanly, as well as un-English, and therefore ought not to be tolerated or sanctioned in what we style the progressing civilisation of the nineteenth century.



ON ART, IN RELATION TO SOCIAL LIFE.

By H. H. STATHAM, JUN.

IF it be true, as has been surmised by a great critic of human nature, that the same words do not convey precisely the same idea to any two minds, surely of no one word could this be predicated more indisputably than of that short but hard-worked monosyllable, "Art." The word is, of late years, in everybody's mouth; we can scarcely open a magazine without stumbling over an Essay on Art in some shape or other; but words, we have been told, though "the money of fools," are but the "counters of wise men;" and, assuming wisdom for a moment, it may not be quite useless to enquire what this word really stands for with us—for what idea, or class of ideas, is it the "counter?" To a good many who use it, the term probably suggests indistinct images of picture galleries, and sculpture ranged upon orderly pedestals; of an annual crush at the Academy Rooms; or of continental guide-books and *ciceroni*. To a selecter few, who possess the golden key to the acquisition of a "taste" in art, it may rather seem to indicate a privileged lounge through the private studios of sundry painters, or a sale of "old masters" at Christie and Manson's, where the initiated may hold sweet converse, in that peculiar shibboleth of conventional phraseology which Byron, referring to one branch of Art, contemptuously stigmatised as—

"The paltry jargon of the marble mart,
Where pedantry gulls folly."

There are those, again, to whom "Art" furnishes a trade, as regular and lucrative as other more creditable pursuits; whose occupation it is to make merchandise of the brain-work of better men than themselves, and who know to a guinea the market value of such work; and there are those more hard-working and praiseworthy mortals, to whom "Art" stands as the lifelong endeavour to master the difficulties and problems of one or another form of artistic expression; laborious, bit-by-bit perfecting of the voice or the hand and eye in the self-assigned task of overcoming mechanical difficulties of execution, or of imitating with arduous exactness certain forms and aspects of external nature, with but little consideration as to what is the real end and good to be attained by all this conscientious expenditure of labour. And so one might go on enumerating, almost *ad infinitum*, the possible range of ideas which might be called up in various minds by the utterance of this one somewhat too familiar monosyllable. But is all this "art," after all? There are separate "arts," in a more technical sense—the art of singing, of portrait painting, and so on; but are all these collectively, or is any one of them, that which we mean when we speak of "Art" in the highest and widest sense? Was it of such things that Goethe was thinking when he uttered the oracle that "He who has Art and Science (*Kunst und wissenschaft*) wants not religion?" Scarcely, one would think. What is it, then, this unknown Deity to whom so many altars are inscribed, and whom divers ignorantly worship? Can our philosophers give us any assistance here?

Now it does so happen, rather curiously, that within a recent period, the two men who may be said to be the leaders of the most strongly opposed schools of thought among us did, on two very similar occasions, give forth a kind of brief confession of faith as to what they considered art to be;

both taking the great German artist and critic as their prompter, and both, though in sufficiently diverse fashion, coming to very much the same result. It may be suggestive to glance at this. In his Rectorial address at Edinburgh, Carlyle, after alluding to the school of culture described in *Wilhelm Meister*, continued :—*

“ Wilhelm left his own son there, expecting they would make him a Master of Arts, or something of that sort ; and when he comes back for him, he sees a thundering cloud of dust coming over the plain, of which he could make nothing ; it turned out to be a tempest of wild horses, managed by young lads who had a turn for hunting. His own son was among them, and he found that the breaking of colts was the thing he was most suited for. This is what Goethe calls Art, which I shall not make clear to you by any definition, unless it is clear already. I would not attempt to define it as music, painting, poetry, and so on ; it is in quite a higher sense than the common one, and in which, I am afraid, most of our painters, poets, and music men would not pass muster.”

Truly, one may fear not, with a few exceptions. This is rather ambiguous, however, and perhaps those who heard it at the time might have a reasonable doubt whether it were “ clear already.” Let us see whether Mill, in his address at St. Andrew’s University, has said anything to define the subject a little more clearly for average comprehensions. He tells us that—

“ There is a true meaning in the saying of Goethe, though liable to be misunderstood and perverted, that the Beautiful is greater than the Good ; for it includes the Good, and adds something to it : it is the good made perfect, and fitted with all the collateral perfections which make it a finished and completed thing. Now this sense of perfection, which would make us demand from every creation of man the utmost which it ought to give, and render us intolerant of the smallest fault in

* I quote from the (I believe) *verbatim* report given at the time in the *Standard*.

ourselves or in anything we do, is one of the results of art cultivation. No other human productions come so near to perfection as works of pure art. In all other things we are, and may reasonably be, satisfied if the degree of excellence is as great as the object immediately in view seems to us to be worth; but in art, the perfection is itself the object. If I were to define art, I should be inclined to call it the endeavour after perfection of execution. If we meet with even a piece of mechanical work which bears the marks of being done in this spirit,—which is done as if the workman loved it, and tried to make it as good as possible, though something less good would have answered the purpose for which it was ostensibly made,—we say that he has worked like an artist. Art, when really cultivated, and not merely practised empirically, maintains, what it first gave the conception of, an Ideal Beauty, to be eternally aimed at, though surpassing what can be actually attained; and by this idea it trains us never to be completely satisfied with imperfection in what we ourselves do and are: *to idealise, as much as possible, every work we do, and, most of all, our own characters and lives.*”

In these noble concluding words, which might well form a text or motto for all the centres of education and culture in the land, Mill comes round to something very like the conclusion hinted at by Carlyle, viz., that “Art,” in its broadest sense, is a maintenance of the highest ideal of life, the striving after an ideal standard never to be fully comprehended, always beyond our reach, yet always to be aspired after as it rises ever higher and higher. But for this last sentence, it might have been objected that his definition (“the endeavour after the perfection of execution”) was somewhat too hard and material, as Carlyle’s, on the other hand, is certainly too vague and abstract, and makes too little account of those concrete forms of expression commonly known as the Fine Arts. The real relation of these latter to the mental kingdom of Art, to the “Ideal Beauty” spoken of above, is much and strangely misunderstood, and is not, perhaps, duly indicated even in the latter of our two quotations, fuller and more precise though it be than the former.

Both philosophers seem to have been afraid of committing themselves to giving too high a place to a class of pursuits which unquestionably are made the pretext for an infinity of cant and humbug, and which are often practised successfully (in the eyes of society) by persons of anything but high intellectual endowment or culture. But, in fact, these concrete forms of Art—music, painting, sculpture,—though too often

“Profaned by every charlatan,
And soiled by all ignoble use . . . ,”

are, in fact, the outward and visible signs of an inward spiritual grace; the media through which that indefinable and longed-for beauty is given, for the time, visible form and feature; the bridge which gives passage from the finite to the infinite. But it is the bane of art, and what gives ground for the half-contempt with which the calling of artist is regarded by many strong and earnest men among us, that the means are constantly mistaken for the end; the physical and material expression regarded, to the exclusion of the metaphysical beauty which underlies this; the mere execution of the craftsman becomes the object of attention, and in place of being the exponent of an ideal world, is rather made a screen to shut it out from us. Too often is this the case with the professional artist himself, who, being mainly occupied in labouring at and perfecting one special form of expression, is under a tenfold temptation to make that his end, and, unless endowed with an exceptionally high imaginative faculty, almost to lose sight of the ideal object of the art which he practises. How such striving after mere technical skill appears to an artist of really poetic temperament, we may learn from a passage in the desultory writings of that remarkable genius, William Blake, the painter and poet, whose works are only just now beginning to receive some-

thing like due recognition from a minority of his countrymen. "A man," says Blake, "sets himself down with colours and all the articles of painting; he puts a model before him, and he copies that so neatly as to make it a deception. Now let any man of sense ask himself one question, Is this *Art*? Can it be worthy of admiration to anybody of understanding? . . . No man of sense ever supposes that copying from Nature is the art of painting; if the art is no more than this, it is no better than any other manual labour; anybody may do it." The last statement, of course, is an exaggeration; and, moreover, it must be conceded that there is a high degree, though not a high quality, of pleasure derivable from the contemplation of perfect executive power in any branch of art,—from such fruit-painting as that of Lance, for instance, or from the performance by an accomplished singer of one of Rossini's brilliant pieces of vocal display. But it is no less certainly true, that all the higher and more serious value which a work of art can have is in direct proportion to the thought which it contains, to the degree in which it feeds and stimulates the imagination; finish of form in Art is simply the necessary means (absolutely necessary, be it admitted) of setting forth the idea, and preserving it for future generations. That this is comparatively little recognised is partly due to the fact that so many persons interest themselves only in one form of art expression. A man has a "taste," as it is called, for paintings, or for poetry; or he is that most relentless of "bores," a "musical man." But those who cultivate no perception but for one form of art-expression naturally come by little and little to lose sight of the ideal which underlies it, and dwell only on the material facts and technical skill displayed, about which they get up a disproportionate and even absurd enthusiasm. It is as applied to this class of amateurs that the word "connoisseur" (*quasi a non cognoscendo*) becomes so

notable a misnomer, since these are precisely the persons who do *not* "know" or appreciate the genuine value and meaning of a work of art, but only its conventional or market value. It is when Art is generalised, when the several forms in which beauty can be embodied for us are compared, and found to be only various expressions of the same ideal, that we learn to place the materialism of art in its due subordinate position, and to recognise in its various productions, not the means to furnish a drawing-room decorously, or to prop up a society of music-makers, or provide opportunity for the rival display of mechanical sleight-of-hand; but rather the loved and joy-giving symbols of something perfect to be aspired to; channels of escape from the meannesses and littlenesses of every day life, into

"Regions mild of calm and serene air."

Viewed in such a light, Art is surely something which it is good to look into, something which a society of civilised and educated people might reasonably give their serious attention to, in striving to read aright its deeper and more recondite meaning. That we, however, as a nation, are far enough from any such serious and thoughtful appreciation of art, will, it is to be feared, be but too apparent, even on a very general survey. Take, for instance, the art of painting, and its reception and treatment by the public, so far as exhibition-rooms afford a standard for judgment. In the fine new suite of rooms of the Royal Academy, we find, as a motto, round the entrance saloon, the musical lines of Spenser—

"The hearts of men, that humbly here admire
Fair-seeming shows, may lift themselves up higher,
And learn to love, with zealous humble duty,
Th' eternal Fountain of that Heavenly Beauty."

The selection is a most happy one, and perhaps it would be difficult to find a passage more truly indicative of the highest scope of the painter's art. But, looking at a large proportion of the works annually exhibited, there is surely some difficulty in tracing any connection between their subjects and treatment, and the sentiment in Spenser's lines. Among defects peculiar to English art, nothing is more remarkable than the apparent aimlessness of a large portion of its productions: it is really difficult to conjecture why many of the pictures one sees should have been painted at all. This lack of a definite aim in English art has been happily characterised by Mrs. Browning, in a passage in her coarse but clever poem, *Aurora Leigh*; where, speaking of French art, and admitting its comparatively narrow sympathies, she observes that in France, nevertheless,

“ Art walks forward, and knows how to move;
The artists also are idealists,
Too absolute for nature, logical
To austerity, in the application of
The special theory; not a soul content
To paint a crooked pollard or an ass,
As the English will, because they find it so,
And like it somehow.”

But if we turn our attention rather to the public than to the artists, and notice what is most admired by those who crowd our exhibition-rooms, the result is far more unsatisfactory, far more decisively in negation of the sentiment embodied in the motto above referred to. What are the pictures which attract a crowd round them, which are the object of delighted comment, among the holiday visitors to the Academy rooms? Are they those “fair-seeming shows” which bring high associations in their train, which open the gates for imagination to wander in fairer and ampler regions? No; almost invariably the pictures which are

thus singled out for popularity are representations of some ordinary incident of common-place, even vulgar, every-day life: a dapper young man asking the "Governor's" consent, while his "intended" weeps on the shoulder of a fat mother—a good little boy reading a book to his mamma—a railway station—a Court stag-hunt—or some paltry incident of middle or lower class domestic life. Lord Byron, in a letter written from Italy, said, with equal good taste and refinement, that he cared for no pictures but such as reminded him of what he had seen or might see; "as for all your saints and madonnas, I spit upon and defy them." The British Philistine, with a good deal more excuse, perhaps, is in the same state of feeling as his lordship: he wishes for nothing in a picture but a reflection of himself, or of his own habits or prejudices. He is, to do him justice, too respectable to "spit," and too peaceable to "defy" anybody or anything; and upon all works of ideal art he gazes with a stolid indifference, more hopeless to deal with than the most violent positive dislike. One may spend two or three consecutive days in the Academy rooms in the high tide of the season, and scarcely hear a remark from any one of the crowd who move with difficulty through the rooms, indicating the slightest idea that a picture, if it is worth anything, is a thing worth serious study; that the artist's thought will not be laid hold of, but by the spectator who brings thought of his own to meet it; or that the whole affair is anything but a more or less agreeable lounge, where it is the fashion to go, and where people can meet their friends; indeed, but for this last motive, might it not be said, as it was of the concourse at Ephesus, that "the more part knew not wherefore they were come together"? It is not surprising that one or two of our most thoughtful artists have altogether declined competition for public favour in such an arena.

Nor can it be said that this nonchalant attitude towards the Art of painting, as publicly exhibited, is compensated for by any very large amount of intelligent appreciation thereof in private life. It is true that the "patronage" of art (as it is termed), the ambition to possess a fine collection of paintings, is no longer considered as the exclusive privilege of the nobility; that this ambition is largely indulged by a class who, a generation or two back, would have scouted such an outlay as a frivolous waste of money. And there can be no question that among the wealthier mercantile men of England are to be found those who have both a genuine enthusiasm for, and a very competent critical judgment on, works of art of a high class; and that a perception of the value and dignity of art is slowly permeating social strata which were once considered to be necessarily innocent of any such predilections. But is there not, in the meantime, a vast amount also of mere ostentatious display of the power of the purse in such matters, — a sort of feeling that it is "the thing" to have good pictures, a display of what is called a "valuable painting," exhibited just as another man exhibits particular old port, as something he was lucky in getting, and which everyone cannot get? And is this a worthy way of looking at a great branch of imaginative art? And still meaner is that appetite for speculation in works of Art, too frequently met with, which leads a man to look out for pictures that are likely to rise in the market, and to boast (as if it were something to be proud of) that he can get twice as much for that picture any day as he gave for it. It is to be feared that this mercenary view of art is only too much encouraged by the grasping and money-making propensities of some of the artists of most popular name among us. It was remarked by an eminent French critic, the late M. d'Henriet, whose admirable Essays on Art were familiar to readers of the *Revue des deux Mondes*,

that many of the English artists, though they devoted a great deal of time to the study of the greatest examples both of ancient art and of foreign contemporary styles, seemed to carry none of the fruits of it into their practice; "they make arrangements," he says, "with a picture-dealer, and produce rapidly the style of pictures which will command a price in the market." It is known that this is precisely the case with regard to some of the most popular English painters: and the result is what might be anticipated from such a system; the prices are forced up to a conventional standard by the avarice of dealers; and the painter, finding that he can get his own price for anything with his name to it, is content to turn out pictures with no recommendation except the power of manipulation which long practice has given him, and to repeat himself to any extent, until one is absolutely weary of the sight of his mannerisms. Hundreds of pictures of this kind are bought, at prices which are quite ridiculous, by persons who positively would not give a shilling for the same work without the artist's name on it. And this sort of folly, and these forced prices, foster the idea that art is only a luxury for the few; a notion which seems at least to be practically acted upon. In how many of the drawing-rooms of persons of average means do we find, on looking at the walls, any indication of the owner's tone of mind, anything to show that the pictures or prints hung there are introduced from any better motive than merely to fill up the wall, and give the room a furnished look? Prints or photographs of some well-known popular picture, or some of those great, coarse, common-place engravings which "Art Unions" dispense to their subscribers, mostly form the staple, with, perhaps, some starved little statuette of a Venus or a dancing girl; and rarely indeed is there anything which suggests a new and original idea. Yet something far better

than this is attainable, were it wished for, without pre-supposing extravagant outlay. I have certainly known rooms, and those of no wealthy owners, which it was a pleasure to go into, not because their walls were decorated with expensive purchases, the work of well-known or famous artists, but because all that was hung there had a meaning and significance, and whether it were print, or photograph, or water colour, showed unmistakeably that it had found place there, not as a mere piece of furniture — not because it filled up the wall, or went well with the carpet or curtains — but because it was something that its owner loved, that answered to some phase of his own mind, and furnished the starting-point for some pleasant train of thought and association. Thus it is that genuine art, even in its simpler forms of expression, can impart a character and grace of its own to a dwelling, which no mere tasteless or ostentatious expenditure can emulate.

Perhaps the contrast between the possibilities and the actualities of art cultivation is even more strongly exhibited in the part played among us by that which may be called pre-eminently the social art of modern life. Music is the only branch of artistic expression which is of comparatively late growth, and which, so far as we can judge, has been within a recent period at the height of its power and vitality, though now on the decline. And, taking it in its purely instrumental form, perhaps no branch of art is so thoroughly ideal, so romantic as this, so powerful to

. . . . "take the prisoned soul,
And lap it in Elysium."

And in regard to social enjoyment, music has this great advantage, that although its grandest utterances demand the expensive resources of a concert-room, and a phalanx of executants, many of the most beautiful productions of the

art can be compassed in private domestic performances without entailing any extra expenditure, for Beethoven's sonatas cost no more than any worthless fantasia on popular airs; they are not, like pictures, charged in proportion to the name and fame of the author. And a wonderful and beautiful thing it is, that a single instrument, a mere mechanical combination of wood and wire, should have power, when rightly handled, to awaken in us so many varied feelings, to sympathise with our innermost passions and longings, to furnish for those whose ears are open thereto an escape for the time from all that is commonplace and prosaic, into a region of pure ideas. There are few houses now that are without a piano of some sort, and so this branch of art seems to be technically within reach of most of us. But what sort of use is really made of this beautiful art, at our gatherings for social intercourse and enjoyment? Do we not know the orthodox programme only too well? How sundry young ladies will be asked to give us a little music; how they will make excuses and rescind them; how they will begin to play, and everybody will begin to talk louder until they conclude, amid a chorus of "thank-you's" and compliments, the task which custom enjoins. Is not this just about what happens in nineteen houses out of twenty? Can anything be more absurd, more utterly devoid of common sense, than such a proceeding? If, at an evening party, it were decreed that every guest should be called on to recite a piece of poetry, and if everyone were to talk as loud as possible during the recitation, the absurdity of *that* would be apparent enough, one would think. And what is music, but the poetry of measured sound, the expression of feeling through the medium of melody and harmony? Music which is not this, is no better than sounding brass or a tinkling cymbal. And why is this branch of art, more than any other, to be habitually misused and degraded in such a

nonsensical manner? One word will give the answer—It is the *fashion*. As with the pictures, so with the music—fashion decrees that you shall hang pictures on your wall; fashion ordains that your drawing-room furniture is not complete without a piano; and when a piano is there, of course it must be used—in some way; and fashion again demands that every young lady shall be able to use it. As a general rule, no man takes to playing any musical instrument except from an innate love for it; and whatever his natural talent for the art, a boy will generally find every possible obstacle thrown in the way of his studying music at all at school. But let a girl be ever so indifferent to it, let her be totally without musical talent or capability at all, it is no matter; music is part of the programme of her education; and it is really pitiable to think of the hours that are wasted by many girls, in the best time of their youth, in the aimless drudgery of trying mechanically to learn an art which they have no turn for, and by which they can give no pleasure either to themselves or to anyone else; hours which might have sufficed for learning more than one language, or attaining proficiency in some other branch of study for which they might have an aptitude. If it is really a *sine quâ non* that conversation in a drawing-room should be accompanied by the sound of a piano, a great deal of time and trouble would be saved by having a mechanical piano, which could be set going as the guests arrived, with the additional advantage that you could stop it whenever you liked, which cannot always be done with the living performer. At all events, it is surely high time that a little common sense should regulate these matters: all people do not apprehend the language of music, and those who do may not want it always. If people when they meet together do *not* want it, let them dispense with the practice of inflicting it on each

other; if they do, let them have such music as is worth listening to, and listen accordingly.*

In public performances of high-class music, there have undoubtedly been great steps made of late years; and in London, at the Crystal Palace Concerts, and what are called the Monday Popular Concerts, large audiences may be seen listening with unaffected and rapt attention to the very highest outpourings of the greatest musical poets. London is, however, no criterion of the taste of the nation, for its population is so vast and varied that an audience may be found there for almost any style of entertainment, intellectual or the reverse. If we take the average provincial indications of musical appreciation, we cannot form a very high estimate of the extent to which the real meaning and beauty of the art is recognised. Even in places calling themselves "musical," those who take note of such matters cannot but perceive that the symphonies of the great instrumental composers ("the Kings of Sound," as Matthew Arnold calls them) are too often merely tolerated, and their performance made the opportunity for small talk and flirtation; and probably not one person in twenty, in an average concert audience, has any adequate notion of the meaning or object of one of Beethoven's symphonies, or cares to have any.†

* Unfortunately, the current fashion of having music which no one is expected to listen to has naturally called forth a large supply of music which is not fit to listen to—showy fantasias, sentimental ballads, and the like; things which I once heard described (quite seriously) as "drawing-room music."

† How near are our concert audiences to any such intimate communion with the spirit of music as that which Rossetti has indicated, in his wonderful sonnet—"The Monochord: written during music"—

"Is it the moved air or the moving sound
That is Life's self and draws my life from me,
Nay, is it Life or Death, thus thunder-crowned,
That 'mid the tide of all emergency,
Now notes my separate wave, and to what sea
Its difficult eddies labour in the ground?
Oh! what is this that knows the road I came,
The flame turned cloud, the cloud returned to flame,
The lifted shifted steeps and all the way?"

But let a violinist execute impossibilities on one string, let a pianist clatter through a difficult fantasia at express speed, let a singer strain her throat over what are called "bravura" passages, and finish off with a scream on a high note, and applause and a recall is the certain consequence. Is this music? is it anything worth the attention of educated persons, or worth the expense of keeping up a large establishment for its performance? Goethe complained to Eckermann, that, even in his day, the executive part of musical performance was quite over-riding the intellectual; but now we have got to such a pitch that whole audiences of otherwise sensible people are willing to listen to and applaud, as music, performances which are, intellectually, exactly on a level with conjuring and tight-rope dancing, and which could only be rationally defended on the theory of Jeremy Taylor, that "violent exercise is an excellent means for driving out the devil." The artists must not be judged too hardly for this; they have their living to make, and must give the public what they demand; but if the said public knew how some of the same artists laugh at them in private for applauding such things, they would open their eyes rather wide. What most people look for, however, at a concert, is something that they can listen to without thinking of it; and as long as this nonchalant view of the subject prevails, anything like an appreciation of the highest utterances of the art must be very partial and limited in its progress.

Before quitting the subject of Music, a word may be said as to a form of art in which it is used, not purely for itself, but (in theory at least) as subsidiary and illustrative. Opera, an entertainment so largely interwoven with the social life of a considerable portion of the wealthier class, has been somewhat evil entreated in this country. On the one

hand, it has been held and treated by the upper ten thousand merely as one of the luxuries provided, as a matter of course, for their peculiar delectation ; on the other hand, it is denounced by sensible and thoughtful people, as a frivolous, expensive, unmeaning entertainment, unworthy of any serious attention. Unfortunately, some of the operas which have attained the greatest popularity afford, on account alike of the vapid and sensuous character of their music, and the silly, and at times licentious, stories which it illustrates, only too much ground for this condemnation. But there is a great deal to be said for opera, and those who despise it probably misunderstand its real capabilities. Viewed in the highest (artistic) sense, a fine opera is, in fact, a remarkable and splendid combination of several languages of art, so to speak, to produce one grand impression. It differs from drama, in that it is removed a degree further from the realities of nature, and appeals less directly to the intellect, more to the passion and imagination, of the spectators ; and in works of the highest merit, the story, the scenes and grouping, and the music are all carefully arranged and blended, so as to increase and emphasise the total impression. And those who have enjoyed such a performance, for instance, as that of Cherubini's *Medea*, not long since given at Covent Garden, where the "old poetic" associations of the legend, the fine scenic effects, and the noble character of musical illustration, sustained from first to last in the highest style of the art, left an impression of grandeur never to be effaced from the memory,—might be pardoned for thinking such a result quite worth the trouble and cost required to realise it. Compositions of this class, however, are generally played to thin houses, and do not attract the *habitués* of the opera, most of whom regard the whole affair as a rendezvous where they can meet their

friends, hear besides the favourite singer of the hour, and talk

“How this or that Italian sings,”—

the musical interest, so far as it exists, centering not in Mozart, or Rossini, or Gounod, but in Patti or Nillson. It is owing to this habit of regarding an opera mainly as an opportunity for vocal display, that so many bad and feebly constructed works have gained great, though temporary, popularity; the weakness of the instrumental portion, the absurdity of the libretto, being all pardoned for the sake of one effective song or *finale*.* In the provinces, this one-sided view of the subject results in the toleration of operas, gone through by a company of singers touring the country, with bands totally inadequate, and with any old scenery that the provincial theatre may have in stock, whether suitable or not. It is no wonder that sensible people should laugh at opera when it is presented to them in this way, and should think that accompaniments of this kind were better dispensed with altogether, and the music left to stand on its own merits alone; but it is quite another thing when the accessory scenery is what it ought to be; and there are designs made by Schinckel, for instance (for the use of the Berlin theatre), for some of the scenes in Glück's *Alceste*, Mozart's *Zauberflöte*, and other great classic operas, which are really in themselves works of high imaginative art, forming a worthy setting to the ideas of the composer. And unless

* “I do not understand, my children,” said Goethe,—in answer to some younger friends who praised the music of an opera as compensating for the bad libretto,—“how you can separate the subject from the music, and enjoy each by itself. You say the subject is wretched, but you can set that aside, and enjoy the excellent music. I do not understand this arrangement in your natures; how your ears can be in a state to enjoy pleasant sounds, when the most powerful sense, vision, is tormented by the absurdest objects.” Eckermann's *Conversations with Goethe*.

opera is thus regarded, as a combination of artistic resources all to be equally studied in relation to the *tout ensemble*, it had certainly better be let alone altogether. Then nothing can be more absurd than the Italian mania about opera. The finest operas have been written by Germans; many of the best singers on the stage at present are German or English, and one or two American; but in obedience to fashion, all operas in this country must be translated into Italian; and probably half the audiences who attend our theatres would consider themselves defrauded if they heard an opera in English which they could understand, instead of Italian which they mostly do not understand. Not only is there no sense in this translating, but it is often a positive artistic injury to the work. The genius and spirit of a language give much of the character and style to the music; Meyerbeer's *Les Huguenots*, for instance, is as intensely French in the rhythm and accentuation of the music, as *Der Freischütz* is intensely German; both lose immensely by translation into Italian; a perfectly unnecessary proceeding, as nearly all educated people (singers included) understand French, and if the German were to be translated, it is far better translated into a kindred tongue like the English, than into one of another family like the Italian. It is really matter for regret that a class of entertainment, which might be made the medium for so much intellectual enjoyment,* should not

* Rousseau is said to have remarked, *apropos* of Glück's *Orfeo*, which he greatly admired, that "if so much exalted pleasure can be enjoyed in the space of two hours, it serves to convince us that life is really good for something." Charles Dickens, referring to Madame Viardot's assumption of the leading part in the same opera, used to say that "he could find no language to express his admiration for it." These two observations, considering the genius and the social and political antipathies of those who uttered them, ought alone to convince the most sceptical that Opera may and should be something more than the idle amusement of an empty day, or night.

be treated a little more philosophically, instead of being left to the caprice of fashion, and looked upon as a mere appendage to the daily life of those who are called the "aristocracy." And be it remembered that a great deal of the disproportionate expense, which is made a charge against opera, arises from the habit of regarding the singing as everything, and the engagement of singers of European reputation as a *sine quâ non*. Those provincial towns which possess a good concert band might, at no inordinate expense, support a theatre, where many of the best German operas, at all events, could be given in a manner far more satisfactory, artistically, than the bi-annual scramble through a dozen works vouchsafed to the provincial public by the company of the London Opera House.

Reflections of a similar nature, and perhaps to even stronger purpose, might doubtless be made in regard to the artistic condition of the drama generally amongst us; indeed, it seems tacitly admitted that the English theatre has in the main sunk so low, as at present to be little worthy of serious attention at all. Glancing at another art, largely and necessarily connected with our every day public and private life,—that of Architecture,—I might, did time permit, point out how unevenly public and private interest and expenditure in this art is proportioned; how we make a vain show with municipal buildings and Town Halls, with stupendous and astonishing clock-towers, while our streets are left a weariness to the eye, a wilderness of inhospitable brick; how the decoration, or what should be the decoration, of our houses is meaningless, tawdry, and absurd, left too often to be devised by the vulgar minds of the upholsterer and his accomplices; and how even architectural design in the English gentleman's house is often deliberately opposed by the said gentleman, and any individuality of style or feeling deprecated, on the ground of some sup-

posed vulgarity involved in any effort to "differ from your neighbours" in such matters. But to go into these and other branches of art in their social developments, would carry me beyond the limits to which on this occasion I must necessarily be restricted; and it will be more in accordance with the title and object of this paper to consider, for a moment, what general reflections may be suggested by the view which has been taken of one or two branches of art, in their connection with contemporary social life. There are, undoubtedly, many, and those not among the least learned and earnest men of our day, who would be disposed to say, Of what consequence is it just now, when so many grave problems are hanging over our heads—political, social, theological, and so forth—to spend time in discussing whether people should admire this or that style of art? I should reply that, in one sense at least, it is of more consequence than anything else. If, indeed, we take each branch of art separately, it may seem a matter of secondary importance whether a man cares about that particular art or not; yet, recurring to the view indicated at the commencement of these remarks, that works of art are the visible symbols of a high ideal beauty, the extent to which these are in general appreciated and entered into by a nation is so far a measure, and the only measure we have, of national sympathy with a high ideal of life and enjoyment, of national ability to rise above a merely animal and material standard of existence. The aristocracy of England, as we know, make a great point, have long done so, of forming what are termed "valuable collections of works of art;" but is the true value and significance of these appreciated by them; and are they endeavouring, in pursuance thereof, to carry out Mill's principle, "to idealise as much as possible every work we do, and most of all our own character and lives"? For some, it is to be feared, the card-

table, the race-course, and (unhappily) the bankruptcy courts must answer. But we must not judge a class by its least favourable specimens; and happily we (that is, the middle-class public) have been recently supplied with something like a criterion of what passes for refined enjoyment among the upper ten thousand, by one who has spent most of his life among them, in spite of the inconvenient accident of having been "born in a library." And what has *Lothair* to show us of the beauties and artistic adornments of life, where means and opportunities are unlimited? We read of the "peculiar genius of our country-women to make a place — *habitable*:" this habitability consisting in "beautiful carpets, baskets of flowers, cases of ferns, tables covered with an infinity of toys—sparkling, useful, fantastic" — elsewhere we meet with "fantastic wicker chairs, gilt and curiously painted . . . little tables, all different" (a daring stroke of genius!); "the soups in delicate cups of Sèvres, the wines in golden glass of Venice, the ortolans, the Italian confectionery, the endless bouquets, were worthy of the soft and invisible music which resounded from the pavilion," &c., &c.; and, to crown all, a gigantic shell floats up on the lake, filled with an orchestra which discourses to the listeners: and when we go on a hunting party, we are accompanied, not by a horn, but by the "notes of venerie," and our game is brought home "in a gilded cart." These be thy Gods, O Israel! This trumpery upholstery is what is necessary to make a place "habitable" for an ex-Premier and his aristocratic friends; this is what an unlimited income is supposed to do in the way of art. "If," says Mr. James Fergusson, in his work on the *True Principles of Beauty in Art* (a book which ought to be more known and read than it is), "if the minds of the upper classes in this country were thoroughly imbued with the truths of science, and earnest in their pursuit, they would not require to waste in dissipation and frivolity that energy which might

be so far better employed on higher objects ; and were they to cultivate intellectual beauty, they would find in it a far higher and more lasting gratification than in those forms of sensual beauty in which alone they now indulge ;" and the same writer, after observing that there exist in the present day as many sources of pure and high aspiration as have existed in any former age, justly remarks that it is painful to see them cast aside unused, "and their place supplied by mockeries and absurdities which degrade the name of art, and lead men to believe that it is only a hollow bauble, or a pander to our lower sensual propensities."

We are to look, however, we hear, to the "great middle class" for the future standard of English character and thought. And certainly this middle class has unquestionable virtues of its own. It is eminently respectable ; for the most part irreproachable in its domestic relations ; and tolerably honest, when under no particular temptation to be otherwise. But the English middle class has one crying sin, sapping the good that is in it ; it has bowed down, body and soul, before the golden calf—has adopted the reading of the second commandment embodied in Arthur Hugh Clough's "modern decalogue"—

" No graven images may be
Worshipped—except the currency."

The reproach that we are "a nation of shopkeepers" becomes truer year by year, as this class gains in influence and position ; not in the sense in which the taunt was originally made, that we are not a military nation, (though that may be true), but in the sense that we are in danger of becoming a nation devoid of all high and unselfish principle, of all chivalrous feeling, of all love of what is beautiful in life for its own sake ; a dead, dreary, profit-and-loss view of existence is settling down like an incubus upon us. Some

years ago, a caustic writer in *Fraser's Magazine* sang the honours of modern chivalry, of the new orders and exploits of modern knighthood, how

"Sir Moses, Sir Aaron, Sir Jam-ram-ajee,
Two stock-jobbing Jews and a shropping Parsee,
Have girt on the armour of old chivalree—

* * *

True, with 'bulls' and with 'bears' we have battled our cause,
But the bulls had no horns, and the bears had no paws;
And our highest achievements of courage and pluck
Have attained but the glory of 'laming a duck.'

'Twixt St. George and the Dragon we settle it thus,
Which has 'scrip' above 'par' is the hero for us ;"

and so on. But the subject is a more serious one than we can afford altogether to jest over. It has been said by Bacon, in one of those weighty concentrated sentences of his, that "in the youth of a State arms do flourish; in the middle age of a State, learning; and then both of them together for a time; in the decline of a State, mechanical arts and merchandise." Does not this last ominous sentence seem to fall upon the ear like the knell of the real greatness of our country? That such an idea is present with some of the most clear-sighted and thoughtful minds among us, is evident enough from what we sometimes read; notably so from a passage in one of Matthew Arnold's later poems, entitled *Heine's Grave*, where, apostrophising the spirit of the departed German satirist, he says:—

"I chide with thee not, that thy sharp
Upbraidings often assailed
England, my country; for we,
Fearful and sad, for her sons,
Long since, deep in our hearts
Echo the blame of her foes;
We, too, sigh that she flags;

We, too, say that she now
Scarce comprehending the voice
Of her greatest golden-mouthed sons
Of a former age any more,
Stupidly travels her round
Of mechanic business, and lets
Slow die out of her life
Glory, and genius, and joy."

It is to be feared that this is no overdrawn picture ; that the class which is becoming in many respects the dominant one amongst us has little sympathy with anything that is great or elevated, little aspiration beyond its own restricted and mercenary ideal of life. If we are to rise above this, to escape from this "slough of despond," it must be, as it seems to me, by informing the minds of the masses of society with some appreciation of a standard above themselves ; with something like a love and desire for what is beautiful for its own sake ; giving, as Wordsworth has said, "nobler thoughts and nobler cares" than those of mere existence. We have plenty of schemes for the regeneration of society, — schemes theological, political, social, — each claiming to be a universal panacea for all shortcomings of modern life : we have no lack of philanthropists, some of them with more zeal than knowledge : "philanthropy" being a natural resource, one may say, of those who are not fit for anything else. But "man shall not live by bread alone" ; nor will charitable schemes, alms-houses, extension of suffrage, suffice to fill the void, and to convert mere blank existence into anything which can in a true sense be called *Life*. To do this is the province of Art, taking the term in the widest sense, as signifying the development of the beautiful side of life — the exhibition and setting forth, through whatever form or language, of ideal beauty. Progress in this direction must necessarily be gradual, for

there are many prejudices to overcome before the ordinary Briton will consent to give anything like serious attention to art at all. Much of the highest art, for instance, deals with the most passionate feelings of human nature exhibited in all their force; but there is nothing from which your typical middle-class Englishman recoils so much as the display of naked passion; it is something which puzzles, we might almost say frightens him, and his feelings towards it are like those of the old lady in Crabbe's tale of Silford Hall, who visited the nobleman's mansion where

Many statues round about were placed,
Proofs, she was told, of elegance and taste;
Nor she denied: yet in a public hall,
Her judgment taken, she'd have clothed them all.

There is much education of mind to be gone through, too, before the highest language of art, the highest forms and types through which the beautiful can be made manifest, can even be understood at all by the majority: and it is towards attaining this state of things that our national education should be more specially directed than it is. It is to be regretted that, in a speech recently made here by a distinguished man (on the occasion of the unveiling of the Gladstone statue in St. George's Hall), a kind of slur was thrown upon artistic and literary education, and the influence exercised thereupon by the present Premier, in favour of what the speaker assumed, as a matter of course, to be the most important of all, scientific education. The name of the President for this year (1870) of the British Association is one never to be mentioned without respect, but there may be more things in Heaven and Earth than are dreamed of even in Professor Huxley's philosophy; and it is not too much to say that scientific education, however important, is so mainly as a groundwork for a higher cultivation of the mind and feelings; that a knowledge of the laws of Nature is but

the practical basis whereon to find the best vantage ground for working out an ideal of life worthy of an intellectual being: indeed, it often happens that really great and imaginative minds, who would certainly recognise the importance of scientific truth, cannot bear to be brought down from their regions of idealism to those of dry mechanical fact; and say, as Blake did, when some drawings of mechanical inventions were shown to him, "Ah! sir, these things we artists hate!" I do not say this is a well-balanced state of mind; but I do say that while on the one hand knowledge of scientific facts does not necessarily produce or presuppose in their possessor a high tone of mind and a high standard of culture; on the other hand the power of entering into and sympathising with the grander aspects of nature and of art, of understanding the message which they convey, of penetrating through these finite beauties to the perception of the infinite beauty which underlies them, does pre-suppose a far higher and loftier tone of mind and of sympathies than unfortunately exists in general among the masses of Englishmen at present. The poet is greater than the man of science,* inasmuch as the truths of the soul are greater than those of the intellect. It may be said that the latter can be taught and the former cannot. This is true in a great measure; but without doubt our national education might take more of the form of a cultivation of the æsthetic faculties than it does at present. At the commencement of

* This observation does not, of course, preclude recognition of the fact that most of the best and strongest intellects among us are at present to be found in the ranks of science, rather than of art or literature. Art and science have each their "times of refreshing," seldom coincident; and we are now in an era of scientific revival. Which of the two is most closely connected with the intellectual character and life of a nation, however, is obvious on the most cursory glance at the history and the "great names" of civilised nations. Greece is to us the land of Homer, not of Aristotle; Germany is endeared to us by the names of Goethe and Schiller, rather than of Humboldt and Liebig.

its previous session, this Society was occupied in discussing the question of primary education; and since then an Act has been passed which will probably give a material impulse to the education of the lower orders among us. May not one be allowed to express a hope that an effort will be made, not merely to give these classes such knowledge as is needed for a successful struggle in the battle of life, but also to direct their minds towards some of those sources of high mental enjoyment which will give them an interest beyond the mere practical concerns of every day existence? I think it especially desirable that our working classes should be induced to take an interest in art, not only because their prosaic and often totally uninteresting occupations render specially needful to them some counter influence of a higher order, but also because, though nowise a believer in democracy, it does seem to me that more is to be hoped for the future character of the nation, from the good sense and earnestness for improvement which are conspicuous among many of this class, than from the stolid indifference, smug respectability and self-content of a large portion of the trading class. I believe there is an innate wish among many of the working classes for what is beautiful in itself; and that one reason why some of the revived church services, with a high ritual and comparatively good music, are (as I am told they are) very much frequented by the working classes, is just that this is often the one bit of anything like æsthetic beauty which finds its way into their lives. The commercial classes, as is well known, nearly always prefer a very plain, one might say an ugly church, and an ugly service; there are, of course, theological motives for this, but it is probable that æsthetics have a good deal to do in the matter also.

In fine, with regard to all classes of society, it may most emphatically be said, that what there is worth

gaining from art and from poetry, never has, and never will, yield itself up save to those who look upon it seriously, and not as a mere idle pastime.* We have to eradicate from the English mind the notion, tacitly felt even when not expressed, that the calling of an "artist" is in some sense an undignified one; that it is unworthy of those who aspire to consider themselves "gentlemen," in the more exclusive social sense of the word. Many persons who could do much for us in art are deterred from making it their pursuit, from the want of social consideration which seems to be considered as attached to this class of profession. "One reason," says Mr. Mill, "why the old painters were so greatly superior to the modern, is that a greatly superior class of men applied themselves to the art. In the fourteenth and fifteenth centuries, the Italian painters were the most accomplished men of their age. The greatest of them were men of almost universal acquirements and powers, like the great men of Greece. But in those times, Fine Art was, to men's feelings and conceptions, among the grandest things in which a human being could be engaged; and by it men were made, what only political or military distinction now makes them, the companions of princes, and the equals of the highest nobility." So far from this being the case now, it may be said that, with some few exceptions, the general attitude of the aristocracy of this country towards art and artists is as if they regarded them as things providentially made for their amusement, when they choose to be amused, but which are too common for them to have anything to do with; indeed, the feeling is, on the whole, still pretty accurately represented in Chesterfield's advice to his son, that if he wanted

* "For strenuous joys,
And craving respite from their stress and strain,
Are those which verse imparts, when read with care,
And written to remain."

HENRY TAYLOR.

fiddling, he should "pay fiddlers to fiddle for him." Till this feeling is got rid of, and its absurdity and vulgarity recognised, it can hardly be expected that many of the best class of men among us will devote their lives to the study of Art. No one, on the other hand, would wish to see the lower orders of this country imbibe that taste for the mere jargon and cant of art, hinted at in *Punch's* suggestions of "culture for the million," where the nursemaid criticises the soldier's sketch; "the perspective of the *chiaroscuro* is divine, Augustus; but O, the *impasto*, is it not a *leetle* too *pizzicato*?" But if, without filling themselves with these dry husks, the lower and middle classes of England could be brought to see and feel that art is really something worth striving to comprehend; that there is in its higher forms of expression a fountain of strength and refreshment to the mind, an indication and embodiment of loftier aims than those which belong to the mere necessities and conventionalities of life, we might hope for the rising of a more generous and less sordid national spirit among us; might, to use once more the words of the distinguished philosopher I have several times quoted, be enabled "to keep up the tone of our minds by frequent visits to those higher regions of thought and feeling, where every work appears noble in proportion to the ends for which, and the spirit in which, it is done."

ON THE MEANING OF THE WORD FORCE.

By ALBERT J. MOTT.

1. The limits of human thought are marked by the use we make of certain words. Between the known and the unknown there is a border land of shadow in which the Forms of future knowledge are dimly seen, while their Contents elude us; and their relation to established truth is felt to be a vital one, while its nature is still unperceived. The names we give to these penumbral phantasms are, to a great extent, the names of our own ignorance in various phases. They point out the directions in which we are aware that we know no more. To speak of electricity, for example, apart from its sensible effects, was, till very lately, to express a belief in an unknown agency. To speak of gravity is, with most of us, to do so still; and the word ether, in relation to the interstellar spaces, belongs to the same category.

Yet it is not absolute ignorance that we refer to when we use these words. We do not give specific names to the mere negation of knowledge. Something really known to us lies at the bottom of our meaning, and to find out what it is, though often difficult, is never labour thrown away. I propose to consider the present meaning of the word Force. It has of late become the most important term, not only in natural science, but in that higher philosophy also which deals with the problems of life and consciousness, and on which all systems of ethics or theology ultimately depend. The first question is, not what we know, but what we mean; what idea we are trying to express; why it is that we use the word force at all. Is it a mere expletive, meaning nothing?

Is it simply a symbol of total ignorance? Is there any object of thought of which it is the name?

2. In questions of this kind, we do not look to Dictionaries or Encyclopedias for direct assistance, but their definitions are valuable, by showing what it is that they are unable to define.

Johnson explains the word force by synonymes: it is strength, power, efficacy, &c.

Richardson avoids a definition of the word as a noun, but gives a list of passages as examples of its use.

The *Imperial Dictionary* tells us that force, in its most general and comprehensive sense, denotes whatever produces a change in the state of a body.

The *Encyclopædia Britannica* defines force as the cause of change in the state of a body, when, from being at rest, it begins to move, or has a motion which is either not uniform or not direct.

In the *Popular Cyclopædia*, whatever produces or tends to produce motion, or a change of motion, in any body, is called force.

If we refer to scientific treatises, we get the following definitions:—

In *Hutton's Mathematics*,* published seventy years ago, force is a *power* exerted on a body, to move it, or to stop it.

In Ganot's recent work.† Every *cause* capable of producing or changing the motion of a body, is called a force.

Mr. Grove‡ says the word force is used in very different senses by different writers. He then defines it as "that which produces or resists motion," and as "that active principle inseparable from matter, which is supposed to induce its various changes." He afterwards speaks of it as

* Vol. ii., p. 130.

† *Treatise on Physics*, § 21.

‡ *Correlation of Physical Forces*, pp. 16, 18, 19, 4th edition, 1862.

"only a word, derived from the constancy and similarity of the phenomena we seek to explain by it;" and then qualifies this by adding that in the case of tension, where motion is not produced but resisted, and which he calls "an effort of inanimate matter," it is difficult not to recognise a reality in force.

Herbert Spencer* speaks of force as that "by which we ourselves produce changes, and which serves to symbolise the cause of changes in general." This, he adds, "cannot be itself the power manifested to us through phenomena;"† the reason being that force, exerted by ourselves, is known to us; as an affection of consciousness; and that to suppose the same kind of force acting in inanimate objects, is, therefore, to endow them also with consciousness. By force, as we apprehend it out of ourselves, we really mean, he adds,|| "some *power* which transcends our knowledge and conception;" "an unconditioned reality, without beginning or end."

Professor Tait, in his *Thermo-dynamics* (1868), defines force as "the agent in every change of motion, or the measure of the tendency of energy to transform itself."¶ "We have reason to believe," he says, "that it depends upon the immediate action of highly attenuated matter diffused throughout space."

Lastly, in the *Treatise on Natural Philosophy*, now in progress, by Sir Wm. Thomson and Professor Tait, the writers, having first asserted that force "is a direct object of sense,—probably of all our senses, and certainly of the muscular sense,"*** give the following as an exact definition. I quote the whole:—

"Impressed force, or force, simply, is any cause which tends to alter a body's natural state of rest, or of uniform motion in a straight line.

* *First Principles*, pp. 235, 6, § 65, 1863. † p. 236. ‡ § 18. || § 74.
¶ § 3. *** Vol. i., 1867, § 207.

“Force is wholly expended in the *action* it produces; and the body, after the force ceases to act, retains by its inertia the direction of motion, and the velocity which were given to it. Force may be of divers kinds, as pressure, or gravity, or friction, or any of the attractive or repulsive actions of electricity, magnetism,” &c.*

Some of these passages are of extreme importance. They illustrate the nature of the question, and the different modes in which it has been answered. There is, however, one point of general agreement, which involves so much, and is so fruitful a source of misunderstanding, that it must be considered first.

3. All views of force are connected with the motion of matter. When we speak of force in common conversation, we are not always thinking of anything that moves; not always even of anything moveable; but in the greater number of cases there is no doubt that motion of some kind is what we are interested in. For the changes in the things around us are, for the most part, changes of position: the folded bud moves into the open flower; the river runs; the sun rises; to do anything ourselves, in a physical sense, is to move; to see anything done is to look at things in motion. And where no movement is apparent, we know, in innumerable cases, that it has occurred. If we hear, the air has moved; if we see, the ether has vibrated; if frost forms on the window pane, the watery particles have separated themselves in crystals; if it melts, they have run together again in globules. The materials of the world remain the same from age to age. They alter only in their groupings; and to say that one material form has altered into another, is to say that its parts have moved. Thus, when we come to consider what can really be done with matter, we find that it can only be moved; its inherent qualities remaining the

* *Ibid.* § 217.

same, all material variety is attained simply by moving portions of it from one relative position to another, the change itself consisting of the motion, or the new position, or both combined.

4. The clear understanding of these facts has naturally given to the idea of motion a preeminent place in the world of science. To know its laws is to know the laws of the visible universe, and since all material changes depend upon it, motion is, in this sense, the immediate cause of all material change. If so, is it not identical with force? If it will account for so much as this, what is there that it may not account for? Thus arises a conception of the universe as consisting only of matter and motion; and although most men of science are aware that the objections to such a view are insurmountable, there is a very general expectation, amounting often to a very definite belief, that at all events all the facts of our present knowledge will ultimately be resolved into these two elements, and that whatever resists this final analysis will be set aside as transcending human comprehension. One homogeneous material substance, diffused through space, with its parts moving among themselves, becomes, in this way, the ideal origin of nature. The grand discoveries which have shown that heat, light, electricity and magnetism are modes of motion, and are in definite quantitative relations with all the physical facts observable when matter is moved, have naturally tended very strongly to confirm this view. The importance of it can hardly be exaggerated, for although such an ideal origin would itself remain unaccounted for, that is a difficulty which attends every theory concerning final causes, and in practice we rest in thought upon the last object of knowledge, whatever it may be, which separates us from the utterly Unknown.

5. Some grave considerations, however, present them-

selves here. It must, in the first place, be remembered that motion is not an existing thing, and that whenever we speak of it as if it were so, we speak in metaphor. Bodies exist in space, and when at successive instants they exist in successive portions of space, we say they move, and we give to this fact concerning them the name of motion. Here are two positions in space. At this moment of time a body exists in one of these positions. At the next moment it is not there, but in the other position. That is the fact called motion. Space, time, and matter are alone concerned. To speak of motion is only to speak of these as related to each other.

6. In the next place, when bodies move, in what manner do they, by the fact of moving, produce or alter the motion of other bodies? There is only one way in which this can be done by the moving body, simply as a moving body. It must be done by impact; using that word to mean the fact of contact between two portions of matter, one of which is moving in the direction of the other.

If I grasp one end of an iron bar and draw it towards me, the other end moves in consequence; but it does not move simply because the portion in my hand is moving. It moves because the parts of the bar attract each other, which is quite another thing. If that attraction be destroyed by cutting the bar or melting it, the movement of the end in my hand will not affect the other end. In grasping the bar I bring together the two uneven surfaces of the iron and my own hand; my hand being set in motion, it is the impact of these against each other that causes this portion of the iron to move, and this is the only part of the communicated motion in which my hand as moving matter has the appearance of being the sole agent.

If a weight is hung by a cord, and the cord is cut, the weight moves. But this motion is not accounted for by that of the instrument used in cutting the cord. The weight moves because the earth is attracting it, and the cord has ceased to resist the earth's attraction.

Pressure in every form, as a cause of motion, of course implies impact in the same sense; and friction is the impact of superficial inequalities, when it is not simply cohesion.

Now the general laws of impact are well known, though some of the observed facts are not brought under them, but if stepping beyond the laws to form a theory as to their foundation, we ask, How comes it that when one body moves against another, this other body also begins to move? the question leads to some remarkable results.

Unfortunately the question itself has no special interest either to the pure experimenter or the pure mathematician. The first is satisfied when he knows all the facts that can be observed, and the laws of their recurrence; and the work of the second is perfect when he has once ascertained their quantitative relations. Mathematical science is quite independent of any truths that may underlie its own. If $A + B$ is equal to X , then $A^2 + 2AB + B^2$ is equal to X^2 , whatever A , B and X may really represent.

But it is precisely these underlying truths that have the highest interest for us as living beings, and no philosophy is sound if it disregards this circumstance. When the existence of natural laws has been ascertained by exact experiment, and their results have been worked out by exact equations, a new inquiry immediately begins. Its object is to determine what we know beyond these, if we really know anything; or, if we know nothing, then definitely to ascertain that fact. To be assured of ignorance is as valuable as to be possessed of knowledge; and since, our knowledge being finite, inquiry in any direction necessarily leads at last to the absolutely

unknown, we cannot say beforehand whether the fact that a certain thing exists, or that a certain law defines its relations with other things, may not be the last fact of which we have at present the slightest knowledge in that direction. To call it the last fact that ever can be known is unnecessary in any case, and probably unwarrantable. For intellectual life is a journey through infinity, not a stoppage at any given point ; and though what we do not know must always be before us, what we did not know is continually being left behind. But one of the pitfalls of philosophy is the assertion of ignorance with the assumption of knowledge ; the declaration that nothing is known, where at the same time something is taken for granted. The effect is often to put out of sight what may be the fundamental term of an entire argument, and to make its conclusions appear to flow from the other terms, when in fact these could lead to nothing by themselves. This may always be suspected when words, supposed to denote that of which we know nothing, are found nevertheless to be indispensable. Such words invariably clothe some positive idea, and the idea is rarely that of mere blank ignorance alone.

7. Returning to the question, how comes it that when one body moves against another, this other body also begins to move ; the current answer of science is not that the fact is a final one, and totally unaccountable. It would indeed be difficult to maintain such a view of it, for the effects of impact, instead of being simple and uniform, are infinitely variable, and are manifestly dependent on a great number of other circumstances. But a reason for the motion communicated by impact is found commonly in the impenetrability of matter. Matter, it is said, cannot enter the space in which other matter exists already, and if its continued motion would take it there, the other matter must be moved away. This is stated in the following words by Thomson and Tait.*

* § 294.

"When two bodies, in relative motion, come into contact, pressure begins to act between them to prevent any parts of them from jointly occupying the same space."

This statement, which is a very cautious one, leads to the following observations :

Matter is something which occupies space ; anything which does not occupy space is not matter.

Space occupied, is space which admits no more matter within it. If it can admit any more it is not occupied.

To speak of two bodies jointly occupying the same space is therefore to use words which have no true meaning. It is really to make two independent statements which mutually contradict each other, and to which, therefore, no meaning can be attached if they are taken as one statement. To speak of a whole, which is less than its parts, is the same thing precisely. In such cases we are beguiled by the forms of language and the rapidity of thought. We pass so quickly from one idea to the other idea that the two appear to be combined together, though in fact their combination is impossible.

To say that pressure begins to act to prevent two bodies from jointly occupying the same space, is a statement therefore which cannot be accepted, notwithstanding the authority on which it rests. Nothing can act to prevent that which itself amounts to nothing. You cannot prevent a whole from becoming less than its parts. The sentence, "a whole less than its parts," has no more meaning than an hour of space or a foot of time.

8. If a moving body, passing from one part of space towards another part, comes in contact with matter interposed, one of three things must necessarily happen, if the bodies in question continue to exist. Either the interposed matter must move out of the way, or the moving body must stop, or it must move in another direction. These alterna-

tives, separately or in combination, exhaust all the conditions possible after the contact has taken place ; they do so because to assume anything else would be to deny the facts of the supposition, in which, of course, the definition of matter as that which occupies space is involved. But there is nothing in these facts that can in the least determine which alternative will be taken, and if we find, nevertheless, that this is definitely determined in accordance with rigid laws, we must conclude that something else is concerned besides the occupation of space and the movement of that which occupies it.

9. But this reasoning, however unanswerable in itself, leads to no result, for the proposition I have been examining, and therefore all that flows from it, rests after all on an assumption which cannot be believed. We are speaking throughout of what happens when bodies come into contact, and few things are more certain than that they do not come into contact at all. Whatever else may be true concerning the constitution of matter, we are compelled to believe that it exists in particles which do not touch each other under any of the circumstances involved in cases of communicated motion. The phenomena of compression, expansion, vibration, and elasticity are inexplicable, and, in fact, inconceivable, on any other supposition. A heavy blow on an elastic substance will compress it and move it. A light blow will do the same things in a less degree. If the particles of the substance are brought into contact by the heavy blow, they are still apart under the light blow, the compression being less. Yet motion follows in both cases. Gaseous bodies are moved by impact, and a certain amount of compression reduces many of them to a liquid form ; but they are moved by blows which do not liquefy them even at the point of apparent contact, and do not therefore compress any portion of them to this degree. Bodies which have expanded are moved by impact as readily as before their expansion. Potassium

occupies more space as a metal than it does as an oxide, but there is no difference in the effect of impact as a cause of motion when applied to it in either form.

Nor is anything gained by supposing the particles of matter to be in real contact with an interstitial ether, and to move each other by first moving this ; for if there be such an ether it yields to pressure, since material bodies can be compressed, and the supposition requires that it should be unyielding. Bodies are moved by impact in all stages of compression, and therefore with very different distances between their particles. If the interposed ether will yield to pressure, how are the particles moved ? If it will not yield, how are they to be compressed further ?

Moreover, everything which goes to prove the existence of an ether, proves also that it vibrates and is elastic. But vibration and elasticity, as practically known to us, are inconceivable without a separation of parts.

10. It is necessary to dwell on these considerations. They are not new, but they have been neglected. They have perhaps been associated with untenable theories concerning our knowledge of final causes.

The chief fact involved in them is the fact that actual contact is not the essential thing when moving bodies move other bodies ; and the peculiarity of the present position of science in this respect is that, while this fact is admitted in our conception of matter, it is tacitly denied in our conception of motion.

For it is not until actual contact has occurred that the impenetrability of matter, or of the space occupied by it, is so much as threatened. If there is the smallest distance between two bodies, and if this distance cannot be reduced to nothing, the bodies will never penetrate each other ; not because they are naturally impenetrable, but because they can never come near enough to put that question to the test.

To say, therefore, as our best writers do, that pressure begins to act to prevent them from jointly occupying the same space, is to assume the fact of contact, which indeed is indispensable to a purely physical theory of motion.

11. This view, however, is again abandoned. That a moving body should make another body move by touching it is by no means necessary, but it is easily believed; but that it should make it move before it is touched is quite incredible unless something else is added to the conception. We can believe that matter occupies space; that it is impenetrable; that it moves from one position to another position; but we cannot believe that these things alone are the causes of motion in other bodies at a distance. The case requires another term. An active agent is necessary; and what we mean by active agency is not found in mere physical definition, or in mere change of place. Thus it comes to pass that the word Force has found its way into the vocabulary of physical science. It is supposed to be the name of the missing link; of the active agent; of the immediate cause. We may be sure it would not be used if it could be avoided. If the results of experiment and calculation could be expressed in terms of size, shape and position only, they would be so expressed. The time when this may be done is the millenium which a pure physicist imagines in his dreams, and his probationary state just now is often comforted by the belief that, although obliged at present to speak of force, he is really speaking of nothing but motion.

12. Now force, we are told, is any cause which tends to alter a body's natural state of rest or motion.

But if two moving bodies come into collision, the mere fact that they are impenetrable will alter their state of motion, which cannot remain unaltered after they have met, and this simply because they are impenetrable. Yet impenetrability is not force. Force may produce a practical

impenetrability, but it will not be the thing it produces; and natural impenetrability is different again from either. The use of the words "cause" and "tends" will be noticed hereafter.

13. Where forces act in different directions, the result is often not motion, either present or possible, but simply equilibrium. A perfect balance with an equal weight in each scale, taken as a whole, has no tendency to move, although each half of it is acted upon by gravitation, and would move if the other half were taken away. The whole balance will never move of its own accord. One of the scales, considered separately, will move if it is not prevented. Force is operating in both systems, but the results are different. To distinguish this difference the word energy is introduced, to signify force in such a condition that it can produce motion, or, in modern phrase, do work. When work is being done, this condition of force is supposed to be found first in one body and then in another. If I strike a ball with a mallet, the energy is first in the mallet and then in the ball. It is first the moving mallet that is able to produce motion in other bodies, and afterwards it is the moving ball. In such cases, the energy is said to have been transferred from one to the other. If the mallet instead of striking a ball, struck the top of a spiral spring, fixed at the bottom, the coils of the spring would move nearer to each other, and would then stop and move no further in that direction; but they would be ready to begin a new movement in another direction. The mallet is a moving body, the spring at the moment of compression is not a moving body. Energy is possessed by both, but the energy of the moving body is called kinetic energy, and that of the stationary body potential energy. The kinetic energy of the mallet is said to be transformed into the potential energy of the spring, and, in this form, to be stored up in the spring.

Now these various terms,—kinetic energy, potential energy, transference, transformation and storing up,—are the names of real differences which it is necessary to distinguish, and it matters little what words are chosen for the purpose, if nothing beyond their differential meaning is suggested by them. But in this case it is not different things, but only different ratios, that we are really naming; and the words used being strongly suggestive of something else, we are very liable to be misled by them.

14. I throw a stone into the air. The potential energy of my muscle is transformed into the kinetic energy of my moving arm. This is transferred to the moving stone; transformed into potential energy as the stone, rising against the earth's attraction, stops at last in the air; stored up in the stone; re-transformed into kinetic energy as it descends again, and, when the earth is struck, transformed once more into heat, or transferred to visible objects set in motion by the blow.

But nothing has really passed from my arm to the stone, and nothing has been really transformed within the stone or stored up by it. My arm at first was a material body moving with a certain velocity. So is the stone when they part company; and whereas there did exist a quantitative relation between the movement of my arm and other things in general, there now exists a similar relation between the movement of the stone and other things in general; and these relations are proportional to each other. When the stone stops in the air, the height to which it has risen and the time and speed of its descent are in like manner proportional to those previous proportions.

These are the facts which have to be expressed. They are definite, and capable of the most rigid demonstration. The science built upon them is an exact science, and as an instrument of discovery its powers are unlimited and its

results astonishing. But when we pass beyond this into the higher philosophy which leaves relations of quantity behind it, and inquire into other kinds of differences between existing things, it is most important to beware lest the words we have employed, as symbols of ratios only, should be understood to have a proper meaning of their own, and should carry that meaning with them as part of an established truth into our subsequent investigations.

15. The laws of communicated motion, in whatever form they are expressed, assume as a matter of fact that force and motion are not identical, but different. This is continually overlooked, but it is easily demonstrated.

For when motion is caused by motion, there is of course a moving substance in the cause; and when there is a moving substance, the effect produced by it does not depend upon its motion only, but on something else which we call its mass. Now by mass we mean two quantities. One of these is measured by size, but the other is measured by force. So that in speaking of mass we are already speaking of force. But we are not already speaking of motion; for though mass can be measured by motion, this is only because motion is one of the measures of force; and mass can be measured without it, as in fact it generally is; for we commonly estimate mass by weight, or pressure, or inertia, which are not motion, but are other measures of force.

Nor can we evade this result by any vague idea that weight itself, or pressure, or inertia can be merely the effect of motion. For the effect of this motion will still depend on the mass of the moving substance, so that we shall only explain mass in one case by assuming it in another. And as what we here assume is not motion, but something which must be first assumed before motion can account for any effect, the fact remains unaltered, that in speaking of mass we are speaking of force as entirely distinct from motion.

There is no conceivable motion of any conceivable substance that could by itself account at the same time for the gravitation of all bodies on the earth's surface towards its centre, and of the earth itself towards the sun; and if the idea of pressure is added to supply what is wanting, it must be the pressure of something which produces motion while it does not move. Moreover we have already seen that when a moving body causes other bodies to move, it does so without touching them, and the fact of its own movement therefore is never the true cause of communicated motion.

16. The result of these considerations is that not only motion is not force, but that in no case can the mere fact of movement in one material body account for the movement of any other body.

Attempts have been made to escape from this result, by assuming a *petitio principii* in the use of the term matter or material body. Resistance and inertia are said to be necessary qualities of matter, and to be simply forms of force; so that in speaking of matter we are always speaking of the cause of motion.

But, in the first place, resistance and inertia are not forms of force; they are effects of force, and measures of force, though not the only effects or the only measures. In attributing them to matter, as necessary qualities, we are assuming only that matter is always under the influence of force; but this, instead of making them identical, sharply distinguishes the one from the other.

In the next place, there is no difficulty in conceiving matter without resistance or inertia. We can imagine a continuous substance, incompressible, inelastic, subject to neither attraction nor repulsion, and perfectly fluid; yielding without resistance to every impression, however slight. Such a substance would in the fullest sense occupy space, and be under the influence of force. Its nature would be not to

resist, but to obey. Force would be indicated, but could not be measured by its movements, and yet it would be matter unequivocally. If, for example, it could be inclosed in an impervious cylinder, with an impervious piston, the descent of the piston would be impossible, though all the resistance would come from the cylinder.

17. It may be observed, in connection with this subject, that motion itself can never be occurring in all directions, everywhere, at the same time ; for a moving body leaves at every instant a space behind it, which may be filled at once by matter moving in many directions, but not in the opposite direction. This also appears often to be overlooked.

18. That force may be identified with position, is an idea which might be gathered from some of our modes of speech, but the relation between the two is plainly of another kind. When force acts at all, it acts for a certain time, and its effects are proportional to the times of its operation. When bodies move at all, they move at a certain speed ; the distance traversed is proportional to the rate of motion ; the rate of motion is the effect of the acting force. The time during which a given force can act in a given manner depends, therefore, on the positions of the affected bodies. A body cannot approach the position it already occupies, nor can it recede from it except to distances proportional to the rate of motion, which is proportional to the time of operation of the moving force. The relative positions of bodies determine, therefore, not the forces that will operate, but the time and manner, that is, the effect, of their operation. A stone falling to the earth can only fall through the space between them. To say that the potential energy of the stone when it begins to fall is due to its position is true, so far as this, that the rate of motion in its descent, with all its consequences, can be calculated from a knowledge of its position ; but only because the time of the descent, and therefore the time

during which the force of gravity will be acting as a cause of motion can thus be calculated.

The change in the amount of any force, such as gravitation, resulting from increased or diminished distance, that is, altered position, between the gravitating bodies, is not a change in the force itself but only in the area of its distribution.

19. The theory which would identify force with matter, by considering matter as nothing but centres of force, either makes resistance to a conscious will the essential element of matter, which it certainly is not, or abolishes motion by abolishing space. If the centres are really centres of anything, there is space between them, and the theory is a theory of atoms, only the atoms are empty shells, instead of continuous substance. As space itself cannot be moved, the centres of force can only move one another, and what we call the occupation of space is the resistance they offer to the efforts of our own will. But why they should resist; for what purpose they should be apart; what relation they can have to space, which is in no way necessary to them, must remain incomprehensible. All the centres in the universe packed together in the eye of a needle, would leave it just as empty as before. What does their resistance mean, and what are these centres without size which it is supposed to separate?

Besides these objections, the theory stands upon the quicksand which inevitably swallows up every attempt, in whatever form, to identify mind with matter.

20. When we escape from the fancy that force may be the same thing as motion, or position, or matter itself, and consider the form in which our daily experience of it is acquired, we come at once upon two well known ideas, the ideas of attraction and repulsion.

Material bodies generally attract each other while they

are separated by sensible distances, but repel each other if they are brought still nearer. Attraction and repulsion in the same substance are proportional to each other, and to the quantity, which is here the size, of the substance ; but in different substances they differ very widely ; and as causes of motion they follow the geometric laws of the distribution of definite quantities.

These are the main facts established by experience, and the phenomena of motion are in accordance with them. I tie a weight to the end of a rope, and throw the weight from me. The rope is slightly stretched, and follows. I throw the weight with greater velocity, and the rope does not follow, but breaks, and is left behind. The rope is formed of a number of particles, held together by mutual attraction. That attraction is able to move those particles at a certain rate per second, and will move them at that rate if they are very slightly drawn away from each other. If the speed at which the weight moves is less than the speed at which the particles of the rope can be moved by their mutual attraction, the rope follows as a matter of course ; if it is greater, the rope is left behind, also as a matter of course.

I throw the weight against a wall. It rebounds and falls. I throw it against a loose brick on the top of the wall. It carries the brick with it. I throw it against a window ; it breaks the glass and goes through. In each case the moving weight continues to approach nearer the object aimed at, till its motion is stopped or the object itself is moved. There is no apparent effect till the moment of apparent contact, but, in fact, up to this moment the bodies have been attracting each other, and the velocity of the moving weight has been accelerated. But as it approaches nearer, through the very small space now interposed between the two bodies, their mutual attraction ceases, and is followed by mutual repulsion. This is energetic in

proportion to the nearness of their approach, and therefore in proportion to the speed of the moving body, because the greater the speed the nearer it will come in any given time. This repulsion occurs between the surface of the two bodies at the place of apparent contact. The superficial particles being driven back on those behind, are again repelled by them, and these by others. They are at the same time attracted back to their former position by particles from which their movements have tended to separate them.

The result of the collision depends on the balance of these forces. In the wall the repulsion of its surface is not only aided by that of its thickness but also by the forces, both attractive and repulsive, of the surrounding masonry, all of which act under the blow in the same direction, and overpower the repulsion of the weight. In the case of the loose brick, the speed with which the weight was moving carried it near enough for its repulsive force to move the brick before that of the brick itself had time to stop the weight. The glass was broken in the same manner.

There is no need here for any notions of transfer, or transformation, or storing up, or for distinctions between force and energy, or between moving force and static force, except as mathematical expressions for different ratios. Each portion of matter is associated with a certain definite force, which never leaves it, but which, acting always in definite relations with time and space, produces effects dependent on the position of the bodies affected and the duration of the action.

21. The change from attraction to repulsion, which certainly takes place on the very near approach of two portions of matter, is not a change in the force itself, but only in its direction. Repulsive force, though its existence always has to be assumed, is not much referred to in most treatises on dynamics. It seems to be imagined that,

although motion itself cannot account for the phenomena of attraction, those of repulsion may at all events be explained by it alone. And it is true that if bodies come into actual contact when they move, one of the three results which alone are possible is like the effect of repulsion. But actual contact is the essential element in this case. There is no reason to believe in its occurrence, and without it nothing is explained.

22. In chemical action; in electric, magnetic, and thermal changes, attraction or repulsion are the starting points in every series, and they are unavoidably assumed at almost every step. It is the same in organic growth, movement, and decay. No limb can be moved except by the shortening or lengthening of something; that is by the attraction or repulsion of certain particles. Nothing turns on an axis merely of its own accord. If action of any kind appears to take place without the agency of these forces, as in the nerves perhaps, there is no apparent motion.

23. What then do we mean by attraction and repulsion; these universal postulates in every account of natural phenomena? Do we use them only, as some great thinkers have supposed, to express the fact that, certain changes having occurred hitherto in a certain order, we expect the same order in the same changes? It is true that we do expect it, but is this all; and is this what we mean to say? When a heavy body falls, we say it falls because it is attracted; and when it rests immovable upon the ground, we say it rests because it is attracted. How do we come to use the same word to describe phenomena so entirely different; and why do we feel nevertheless that in both cases we are speaking of the same thing?

It is our own muscular sense, we are told, that furnishes us with these ideas. When we draw anything towards ourselves, we have a certain sensation; when we hold anything

in its place against opposing forces, we have another sensation, which is so far like the first that we class them together under the same name. The weight in falling and resting is like the object drawn to us and held by us, and so these things also are described, not precisely by the same name, but by one derived from the same source. To attract is to draw towards something.

But what is it that we are describing? It is not rest, or motion; for these may be, and in their own nature are, entirely unconnected with attraction. It is not our muscular sensation; for we do not attribute any sensation to the weight or to the earth. It is not our expectation as to what will happen; for that expectation may vary to any extent, while we still use the invariable term attraction with a perfect consciousness that our meaning remains the same. And it will be observed that, although when we speak of drawing something towards ourselves we may be referring only to the movement of matter, that is no longer true when we speak of holding in its place the thing that we have drawn. Here we are compelled to add the words "against opposing forces," for there is no "holding" where there is no resistance; so that the conditions of our muscular sensations themselves cannot be expressed without first assuming that we know what we mean by force.

24. What we are really referring to is very well known to ourselves. When we think of our own muscular actions, we are aware, no doubt, of special sensations connected with them, but we are aware of something else as well. The name we give to this something else is Power. It is the name of something we possess, not of anything we do or suffer; of something permanent, not of any change or series of changes; of an element in our nature, without which we might be conscious beings, but not acting beings. When we speak of doing anything; when we say, "I can,"

or "I am able," in an active sense; when we think of our own will in relation to its objects; when we use such words as Try, Endeavour, Effort, Energy, Force, in reference to ourselves; when we call ourselves the Causes of any effect or the Agents in any process, in all these and in every similar case, the something known to us as Power is the essential element in what we speak of or refer to.

25. Now the word Power, is, of course, in itself, no more expressive than any other word, but what we have to do is to fix clearly in our minds the thing we speak of by that name. It is a thing as definite to ourselves, and as distinct from all other things, as Thought, Will, Emotion, Reason or Sensation.

As this is not admitted by all, and as the question is fundamental, it must be examined further. I have used the word "Thing," aware that it may be objected to, but believing that the right meaning is expressed. There is no appropriate phrase which is clear of objection; the common use of words in more senses than one being the difficulty.

Professor Huxley, in his essay on Descartes, asserts, in reference to the famous proposition, "I think, therefore I am," that the statement "Thought exists," is certainly true and cannot be doubted, but that the statement "I exist," is not certainly true, and can be doubted.*

Mr. Huxley would seem here to overlook the fact that there is a radical difference between a name and an affirmation, and that while a name has meaning if there is a single thing represented by it, this is not the case with an affirmation. Now "Thought" is a name, but "Thought exists" is an affirmation. If it should be said that to affirm something is only to think in a particular way, this can only be admitted with the proviso that this particular way of thinking

* *Lay Sermons*, 1870, p. 380.

necessarily assumes the existence of a thinker as well as a thought. An affirmation with nobody to make it, is as impossible as motion with nothing to move. Moreover, although a name does not in itself mean more than the one thing named, nothing can in fact be named till something has been affirmed ; so that the personality of the affirmer has, after all, been necessary to the existence even of a name.

In point of fact, what Mr. Huxley means by doubt is not thought itself, but the effect of thought upon a thinker ; and this is as impossible without a thinker, as one kind of thought without any kind of thought. The impossibility of thinking that there is no thought is, moreover, another kind of impossibility. What is impossible is not that the thought should be formed, but that it should be believed. And the impossibility of this belief arises only when the contradiction involved in it is perceived. It is quite possible to think that there is no such thing as thought, without immediately observing that thought is being exercised. Belief becomes impossible only after this has been observed. And belief, again, is not thought. It is the mental attitude of the thinker.

And, on the other hand, suppose that thought does exist ; what is meant by certainty about it ?

“ Neither of the existence of self, nor of that of not self,” says Professor Huxley ; “ have we, or can we by possibility have, any such unquestionable and immediate certainty as we have of the states of consciousness which we consider to be their effects.”

What is this certainty ? Is it itself a thought ? And if so, what does one thought know about another thought ? And which thought is it that has the knowledge ? Thoughts are not permanent, but progressive. To say that thought exists, is itself a figure of speech. It means that something exists,

which is thinking. To know is not to Be knowledge, but to Have it. To have, implies two factors, not one alone. Certainty, without an "I" who is certain, is again as impossible as doubt without a doubter.

This impossibility shows itself in the very phrases by which it is denied. It is "we" who have immediate certainty as to states of consciousness, and "we" who cannot have it as to our own existence.

Descartes was right, therefore, in assuming that the fact "I exist" is included in the affirmation "Thought exists;" and, accordingly, that the words "I think" express an initial fact of human knowledge.

26. But "I think" is by no means the only affirmation that the personal "I" is able to make, as of a fact of immediate knowledge. I feel, I wish, I remember, I imagine, I enjoy, I suffer, all indeed that is generally understood by the direct testimony of consciousness, is asserted in the same way. All these statements can be made in a possessive as well as an active form. I have feelings; I have wishes; I have memory, &c.

Exactly in the same way do we make the affirmation, "I have power," "I am able," "I can," in what is known as the active sense of these words. They are used in a passive sense with another meaning, but we are not concerned with that here. What we have to consider is that I affirm active power to be mine, exactly as I affirm thought or feeling to be mine. It is a statement of knowledge concerning a mental fact within my own cognizance.

27. Something, however, must be noticed here in which the inadequacy of language may lead to misunderstanding.

Power is the name of that which acts; not of the acting; while Thought is not the name of that which thinks, but of the thinking. Whether we have separate names for the mental elements themselves, or for their conditions, or for

both, has generally been determined for us by practical convenience. Thus, while we have the name of power for that which acts, we have no corresponding name for that which thinks, and can only call it a thinking faculty, or some equivalent name. In Memory, the same word is used to express remembrance, and that which remembers. It is so also with Will, and to some extent with Feeling. All mental life being the life of single individuals, so that it is one person who acts, thinks, or feels, the personal "I" can always be used, instead of the separate names of faculties. But this "I" is not the less composed of parts, which are distinguishable by their differences. That in me which acts is not that in me which remembers, any more than my bodily muscles are my nerves. But both are parts of me ; and I can say, with equal truth and equal knowledge, either that I act or that my power is exerted ; that I think or that my thinking faculty is exercised. I know that power and a thinking faculty are parts of me, exactly as I know that the act and the thought are mine. But we are generally engaged with the thoughts themselves, and have no particular reason to think of the faculty ; while, in the case of power, we are continually thinking about it, as well as about the acts that are done ; for the acts that *can* be done, and therefore the power that can do them, are matters of perpetual interest. If we had frequently to consider what our thoughts would be to-morrow, we should immediately find a distinct name for the thinking faculty, as we do for the acting faculty.

28. And this active power is a necessary element of my existence as an active being. If thoughts, feelings, emotions and changes of place came to me in a series of which I was simply percipient, and over which I had no control, I might be a conscious being, but I should not be alive in the active sense. That I should be able to Do something mentally or physically, or both, is necessary to my life as a man : and to

be able to do something, is to have power. A being who has power in this sense differs essentially from one who is without it. Now when I speak thus of power, I know my own meaning as well as when I speak of thought or sensation. But it is a meaning which cannot be further described. These original affirmations are themselves the elements of description, and it is only by inference and experience that we learn their universal occurrence in the minds of others. We know power in ourselves, apart from its exercise. To be able to do something is different from the doing of it ; and it is this power, which may or may not be used, to which we mentally refer as the source of our own activity and of its consequences. The movement of matter is one of those consequences, and it includes a general control over the position of material bodies. When we notice that they are under similar control, but without our own intervention, we attribute this to a similar cause.

Nor have we, in fact, any choice in the matter, unless we can prevent ourselves from looking behind the mere succession of events outside us. I may say, the moon revolves round the earth, and the tides go through their cycles in the same time ; and if I say no more, I make no reference to power. In like manner I may say, My hand lies still upon this paper ; now it moves, and words are written ; omitting thus all reference to the mental acts that came between. But consciousness in the second case, and reason in the first, point out the radical omission ; and in both cases I say, after reflection, that power has been exerted by which the acts are done.

29. And if experience is the proper ground for inference, our reason is right. We have continual experience of our own activity, both in mind and body, and we know that it does not consist of passive changes, where we simply perceive the fact of change and nothing besides. It consists of power

exercised as well as change effected; our knowledge does not stop at the fact of change, but extends to the immediate cause of change, and this so positively that we are aware of and can contemplate this cause, the power that is in us, while yet no change has been effected. And the fact that our nature has a passive side also; that there are changes in ourselves which are not of our own doing; sharpens the outline of our knowledge by the contrast it presents. We know perfectly well the difference between acting and being acted on; and we know that it consists, not in the change effected, but in the cause of the change.

30. And having this clear knowledge concerning activity in ourselves, how can we do otherwise than infer a similar cause when we see similar effects outside us? Observe how naturally we do it, when the similarity of the effects is evident without any very close examination.

We attribute power like our own to our fellow men as a matter of course. So we do, more or less, to every form of animal life. What we mean by animal life is the possession of that power in some degree. What we fix upon as the proof of animal existence is always something from which its possession may be inferred. We still infer it in the case of vegetable life; but here the difference between ourselves and plants is so much more noticeable than the resemblance that the latter is to a great extent forgotten, and we begin to deal with the *idea* of power without remembering what it is the idea of. Nevertheless we do not quite get rid of the perception that plants act to some extent, and are not merely acted upon, and we disclose this by calling them alive. But in the inorganic world, the general idea impressed upon us by our senses is not that of active power, but of passive indifference among material substances, and their behaviour is so unlike that of organised bodies, on all points but two, that we cease to think of vitality any longer.

The two points of resemblance are, the fact that material bodies appear to move each other, which we all observe ; and the fact that they appear to select each other, which is disclosed by more careful observation.

I take a bowl of water. It is a permanent compound. The oxygen and hydrogen have satisfied their mutual affinities, and rest content while they are left alone. I throw a piece of charcoal into the bowl. It moves the water, but occasions no other change. Oxygen will combine with charcoal, and so will hydrogen, but they will not desert each other under these circumstances in order to do so. I throw in a piece of potassium, and all is changed. The water is not only moved, but its elements are separated. The oxygen rushes to the potassium, and the forsaken hydrogen flies heavenward in despair. Here, evidently, are both motion and selection. This is to do something ; to control and determine something ; in short, to act. And as action implies the power which is its source, we infer this as a matter of necessity, and show that we do so by using the same word.

But we use it vaguely, and with an unconscious reservation. Power, as we know it in ourselves, is an element of life, and, in its active exercise, of conscious life. We do not attribute consciousness to matter, and the conception of power exercised without it is an obscure and imperfect conception. The way in which we get out of the difficulty is characteristic of the human mind. We accept the facts as we conceive them, and we put aside the inference. Here is matter, we say, which is not alive, and here is power acting upon it. Very well. Something has got the power, but, not being prepared to say what the something is, let us call it attraction. The unconscious reservation made in this line of thought is the unacknowledged doubt as to whether we are dealing with power at all ; the question whether those

facts from which it is inferred may not be accounted for without it. To account for them without it is the great effort of physical science at the present time, and it seeks to do this by substituting motion for power. When a body, once moving, continues to move, we do not see in this mere continuance of motion any direct evidence of power. It is inertia, not energy, the absence of fresh action, not its presence, that is immediately inferred. Now if communicated motion could be regarded simply as continued motion, it seems as if the inference of power might be altogether avoided in relation to the inorganic world.

But that it cannot be so regarded may, I think, be proved upon any hypothesis; and on the only admissible hypothesis, the supposition that motion is communicated without contact, this idea, as we have already seen, is quite untenable.

31. That there is action as well as motion in the inorganic world; that action implies power; and that power is what we know by that name as an element of our own living nature, is the theory which in various forms has always risen in opposition to a pure materialism. It has its difficulties, however, and not the least of these is the difficulty of giving clear and adequate expression to ideas which cannot be illustrated by objects of sense.

Sir John Herschel has stated the theory in the following words, which have been criticised by Mr. Bain. He says,*

“It is our own immediate consciousness of *effort*, when we exert force to put matter in motion, or to oppose and neutralise force, which gives us this internal conviction of *power* and *causation*, so far as it refers to the material world, and compels us to believe that whenever we see material objects put in motion from a state of rest, or deflected from

* *Outlines of Astronomy*, 1849, § 489.

their rectilinear paths and changed in their velocities if already in motion, it is in consequence of such an EFFORT, *somehow* exerted, though not accompanied with *our* consciousness. That such an effort should be exerted with success through an interposed space, is no more difficult to conceive than that our own hand should communicate motion to a stone, with which it is *demonstrably not in contact*."

"All bodies with which we are acquainted, when raised into the air and quietly abandoned, descend to the earth's surface in lines perpendicular to it. They are therefore urged thereto by a force or effort, which it is but reasonable to regard as the direct or indirect result of a *consciousness* and a *will* existing *somewhere*."*

I think, with Mr. Bain,† that this statement is liable to very strong objections, though not those chiefly which he brings against it.

The weak point in Herschel's paragraph is the use of the word "effort" as the name of a thing known to us, from which power is a thing inferred.‡ The meaning of power itself is in consequence left unexplained. Effort is the act, not the agent; and it is not the act of power simply, but of power exerted against resistance. Power is the agent, not the act; and it is this that we know as a part of our existing selves. Power may exist without action, and may act without effort. There is such a thing as willing obedience, and there is such a thing as unresisting receptivity. The highest power excludes both resistance and effort, both of which assume the existence of power, and are only evidence of its limitation.

* *Ibid.* § 440.

† Bain, *Mental and Moral Science*, 1868, 2nd edition. Note, page 365.

‡ Sir John Herschel appears to adhere to this view in his paper "On the Origin of Force," *Fortnightly Review*, vol. i, 1865, p. 493. But Mr. Bain's work is of later date.

When Mr. Bain replies in substance to Sir John Herschel that there are many voluntary actions even without any conscious effort, and that conscious effort therefore is not necessarily to be inferred from actions of any kind, his criticism is just, so far as it relates to effort; but he leaves untouched the fact that we mean by power something which is exerted by ourselves in all voluntary action, whether attended by conscious effort or not; that of action as distinguished from passive change, we know nothing except as power exerted, and that the evidence of action is therefore evidence of power, whether voluntary or otherwise.

32. But, the proper meaning of power being understood, it will have been seen already that power in its relation to matter is identical with force in modern science, if force has any definite meaning at all. And since matter, to all appearance, undergoes no change except change of place, it is power in relation to the position and movement of matter.

But what we really mean by power is really inseparable from life. All our true knowledge about it is obtained from ourselves. We know what it is, as we know what thought is, by considering our own mental being. Out of ourselves we know it only by inference; as we know that thought exists in others, by similar inference. We lose sight of the nature of our inference; of the fact that we are attributing to a mental element the physical changes that surround us; but this is a very common kind of oversight, which is corrected only by reflection. It is in the same way that we attribute sound to the strings of a harp, without observing that to do this is to pre-suppose a mental existence.

33. But, power being inseparable from life, we have to consider what kind of life is acting upon inorganic bodies.

Our theories, springing from special theologies, have

generally led to the conclusion that it must be the life of a Divine Mind, without any other intervening. This conclusion is never a satisfactory one. To think of one Infinite Being as the ultimate director of all finite agencies presents no difficulty; but to think of such a being as the immediate agent in the acts of what we call inanimate objects, is, in fact, to attribute the lowest form of visible life to the direct action of the highest mind, while in all the higher forms of life we recognise an intermediate agency. The idea is only made supportable by the vastness of its area. To see finite life manifested in the actions of a man, but infinite life in the flowing of a river, is a conception with which we could not be content in that limited form. And yet the moving water differs from the moving universe only in size. The kind of action is the same. I believe this difficulty is very generally felt, though it is not often acknowledged. But it is a difficulty of our own making, which we may easily remove.

34. Power is an element of our own nature as conscious beings, but it is far from being the only element. Thought, Memory, Imagination, Feeling, Emotion, Will are the names of other elements, or their manifestations, which are equally well known to us. Nor do these by any means exhaust the ultimate analysis of a human mind.

As we descend in the scale of life, many of these elements drop out by degrees, or become so diminished in amount as to be lost sight of. In the lowest forms of animal life, none of them appear to remain except active power, with the rudiments of feeling and of will. In plants, the rudimentary feeling appears to vanish, and will is represented only by that selective capacity which is seen in all organisation. When we reach the inorganic world, there is still the element of power, limited now to the simplest forms of action; and there is still a selective capacity shown in

chemical combination, but again reduced to the simplest form. In this descending series we have never parted company with all the elements of life; we have never arrived at anything even entirely passive; and matter simply occupying space and uncontrolled by active power is nowhere to be found. The knowledge of our own mental existence and the elements composing it, as different from physical existence and its elements, enables us to infer a similar mental existence in our fellow men; and the same grounds of inference disclose the same mental elements, reduced and simplified indeed, but unaltered in their nature, in connection with, and having command over, every material atom in the universe.

In this view of the case, all disputes as to the relation between vital and other forces disappear. All force is vital, and the material atom is only the body of the smallest and simplest living thing; a form of life which is to the vegetable what the vegetable is to the animal world; but a form of life notwithstanding.

35. That the bodies of the higher animals are an aggregate of lower forms of life is already known. The fact has strongly impressed Mr. Darwin, whose provisional theory of pangenesis is indeed built upon it. He writes as follows :*—

“Physiologists agree that the whole organism consists of a multitude of elemental parts, which are to a great extent independent of each other. Each organ, says Claude Bernard, has its proper life, its autonomy; it can develop and reproduce itself independently of the adjoining tissues. The great German authority, Virchow, asserts still more emphatically that each system, as the nervous or osseous system, or the blood, consists of an ‘enormous mass of

minute centres of action. . . . Every element has its own special action, and even though it derive its stimulus to activity from other parts, yet alone effects the actual performance of its duties. . . . Every single epithelial and muscular fibre-cell leads a sort of parasitical existence in relation to the rest of the body. . . . Every single bone-corpuscle really possesses conditions of nutrition peculiar to itself.' Each element, as Mr. Paget remarks, lives its appointed time, and then dies, and, after being cast off or absorbed, is replaced."

It must be remembered that it is our bodies only, not our minds, that are thus formed by aggregation. A number of cells is still only a number of cells, and what they can do together is only a multiplication of what one of them can do. No aggregate of ears will make an eye. No aggregate of servants will make a master. The mind's relation to the body is not that of a whole to its parts, but that of a General to his army. Each soldier has his own individual life, which his Commander neither knows nor has need to know, for his objects are different, and what he requires from the units of his force is simply obedience to certain orders. He wills that certain movements should take place; that lines should be lengthened or contracted; that positions should be occupied or vacated; that resistance should be overcome. He moves nothing himself, except to give expression to his will. If his will could be understood without any material motion, none, on his part, would be required. What he does is to affect the wills of his men, and it is they, not he, who move their own masses to carry out his designs. As the General is to his army, so is the human mind to that aggregate of parts which forms the body it commands; so is the vital principle of each part to its own aggregate of atoms; so is the power associated with each atom to the matter under its control.

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The whole universe is thus filled with life ; but its living denizens exist in an ascending series, from the lowest and simplest form to the highest and most comprehensive. Like the material bodies they control, they themselves consist of elements capable of combination in endless variety. The laws of that combination are at present unknown to us, but the true course of science is first to ascertain the facts, and then to seek their explanation.

36. It may be objected that if mental power is exerted only to induce similar action in other powers of a like nature, the movement of matter itself is not yet accounted for. The objection leads us to a more profound comprehension of what we mean by power. It has been taken for granted that control over our own mental operations cannot be referred to the same source as control over the movements of matter ; but the very words employed should convince us that this view is erroneous. The words are identical, nor is it possible to detect any real difference in their meaning. In speaking of power, we are not really speaking of our ability to do this or that, but of our ability to do something. It is not our mental activity in relation to one specific effect, but as the cause of any effect, that we refer to. If we control emotion ; if we concentrate attention ; if we tax our memory ; if we analyse our thoughts, we do these things by the exercise of power, just as much as if we move our limbs. It is the active element itself ; the part of us by which the doing anything, as distinguished from the being anything or receiving anything, becomes possible, that we mean by power. Command over something is its essence, and whether that something be matter, in which case the command will refer to its position—or mind, where it will refer to mental states or changes, the same power is spoken of, and the difference is only in its application. And it is natural to expect that power, in the lowest forms of life, will be concerned chiefly with material

changes; and in the highest forms chiefly with mental changes.

When I grasp anything with my hand, I know that I exert my power. I have commanded, and am obeyed. But how far matter has been moved directly by my command without intermediate agency I am not able to say. All the cells in certain muscular fibres of my arm have moved. I know no more of this than the General knows of the footsteps of his soldiers. It seems to me that they have obeyed my orders, rather than that I have directly moved them. But then my orders have had to be communicated, and there is reason to believe that nothing can be communicated, even by one human mind to another, still less to any lower form of intelligence, except by some movement of matter. What I have moved myself has been sufficient therefore for its purpose, but there is no reason why it should be more than sufficient; and the difficulty of distinguishing this initial movement arises probably in the first place from the extreme minuteness of the act. For my body is a wonderful machine, and the effect of good machinery is to bring about great movements as the result of very small ones. A hair's breadth motion in the short arm of a lever may make the long arm sweep the skies. The touch of a child's finger may blow a city into fragments. A railway train standing motionless starts on its journey merely through the opening of a valve. A ship's course is determined by the movements of its rudder; and the rudder itself might be guided by merely breathing hot or cold on a thermo-electric pile. When initial work can be so economised by human ingenuity, it would be strange indeed if it were wasted in the mechanism of living bodies.*

* See Sir John Herschel "On the Origin of Force," already referred to. This short paper, and the still shorter dialogue on "Atoms,"—as searching as it is amusing—in the same volume of the *Fortnightly Review*, should be well considered by all students of the principles of modern science.

And this is the conclusive answer to the objection raised against the motive power of mind, on the ground that the movements of our bodies are accounted for by the ascertained amount of their physical powers. The business of our minds is not to do the bodily work, but to direct it. Some work, indeed, they must do themselves in order to direct it, but this is doubtless so extremely small that we may expect it to defy analysis.

37. I may here refer to another of the difficulties in our conception of moving forces. That every particle of matter attracts every other particle however distant, is an axiom of modern science, and as a mathematical statement of ratios it is strictly true. But it is quite inconceivable as a literal fact. That the smallest grain of sand at the bottom of the sea should have a direct individual influence not only upon every other grain, but upon every atom in every star above us, is I think perfectly incredible to the human mind. No physical theory can satisfactorily solve the difficulty; but it is solved immediately by the mental theory. When a word of command by a General sets a regiment of horse in motion miles away, it is not because the General himself has any personal influence on any one of the horses. It is because the expression of his will has altered the will of some one near him, who has exerted a similar influence upon another, and so on, till, the will of each trooper having been affected, they shake their bridles and strike their spurs, and the charge is made. So, the tiny power in the grain of sand draws towards itself, not the whole milky way, but the small grains nearest to itself. These, being drawn, exert their little forces to draw the next; and thus the whole universe is in fact affected, not by the grain of sand, but because step by step one exertion of power has induced another. This of course is to assume that the interstellar spaces contain a material substance, through which the motive influence

can be continued ; but this only coincides with the conclusions of science drawn from other sources. It must be noticed in addition that the conception of motion as caused, not by any power associated with the moving body, but by some other power ; a conception nearly identical with that of inertia ; is manifestly hypothetical. It is as easy to suppose that the earth endeavours to move towards the sun as that the sun endeavours to make her do so. The incentive to action is often confounded with the active agency, and, through defect of language, a Motive is spoken of as if it were a motive Power.

38. The ratio between distance and power is not affected by the view we take of the nature of power. Its intensity at any given point must diminish as the area of its influence increases, if there is any quantitative relation, as in material changes there always is, between a cause and its effect. Even in mental changes of the most complicated kind, where the resultant of the various influences defies all thought of calculation, the power of one mind over other minds bears a general proportion to the closeness of their intercourse.

39. It appears, then, that the word force as used in science has the same meaning as the word power, when we speak of power as an element not of our bodies but of our minds ; and that force, therefore, is the name of a mental element, not of a material one.

If this is not so, then force means nothing, and we use the word only for convenience, as a short way of saying that certain material motions have been observed in a certain order ; that we expect their recurrence in the same order ; but that we have no conception whatever of anything beyond, or of any reason why they should so recur.

If this were true as a matter of fact, it would of course be necessary to state it ; but as a matter of fact it is not

true. The word force has in our own minds as distinct a meaning as any word which is not the name of a material object. To say the sun is acting upon the earth, is no more a figure of speech than to say it is thinking of the earth. We do not say it is thinking; we do say it is acting; that is, we affirm one mental fact concerning it, but not the other.

If science is not prepared to admit this, then its nomenclature ought immediately to be changed. How can we use such words as Force, Power, Energy, *Vis viva*, Attraction, Tendency, and the like, without constant reference to those mental facts of which they are the names? How can we speak of transforming and transferring them, and still understand clearly that there is nothing even metaphorically to transform or transfer? Strict science requires rigid definition, and this is practically impossible when the words employed suggest the very ideas it is intended to exclude.

In this case, however, they cannot be excluded, nor is it possible to state the known facts of science without reference to power. We cannot reduce them to a simple account of States, but are forced perpetually to the consideration of Tendencies. And Tendency resists every attempt at definition which does not include the element of power.

40. I should have avoided the use of the word "cause" if it could be done conveniently. It is an old battle field, and it has the misfortune of being a field where several armies have to be encountered, because the word itself is used in several senses. Yet science cannot do without it, and it is especially in the sense in which my power is the cause of my actions that its scientific use chiefly occurs. Mr. Bain's method of disputing this* is one of the latest statements on the subject.

"To express causation," he says, "we need only name one

* *Mental and Moral Science*, 2nd edition, 1868, p. 406.

thing, the antecedent or cause, and another thing, the effect ; a flying cannon shot is a cause, the tumbling down of a wall is the effect. But people sometimes allow themselves the use of the additional word ' power ' to complete, as they suppose, the statement ; the cannon ball in motion has the ' power ' to batter walls ; a pure expletive or pleonasm, whose tendency is to create a mystical or fictitious agency, in addition to the real agent, the moving ball."

This statement cannot be accepted. Merely to say " a cannon ball and a battered wall " is not to express causation. It is not enough to name the two things together ; not even if we add that they occur in succession, or in invariable succession, whatever that means ; or in succession which we cannot conceive to be reversed. If one body moves into a space already occupied by another body, the second body must first move away. The succession here is invariable, if anything is, and its reversal cannot be conceived ; yet there is not the slightest notion of causation. The first body does not move into the space because the second body moves out of it ; though this moving out is the necessary antecedent to moving in. It is not naming two things together that is sufficient in any case. One of them must be named as an Agent ; as indeed Mr. Bain himself seems to perceive. In other parts of his work we find this causal agency resolved into force,* and force into tendency. Such a result is indeed inevitable.

41. Mr. Herbert Spencer, in a very important paragraph from which I have already quoted, has assumed that force, as present to our minds, cannot resemble the force existing in inorganic bodies ; on the ground that these are not conscious, while force as known to ourselves is an affection of consciousness.

* *Ibid.* pp. 141, 142.

To this there are two replies, both of which appear to be conclusive.

Force, as known to ourselves, is not an affection of consciousness. Our knowledge of it is an affection of consciousness, but not so the thing known. To be able to do something is not to be conscious; although to know that we are able undoubtedly is.

And consciousness is something, the existence of which, out of ourselves, may often be positively affirmed, but can never be positively denied. We learn its presence by its effects, but we cannot learn its absence in the same way. It is quite possible for a human being to be conscious, not only without revealing this to others, but without being able to do so. It is quite impossible for human beings to reveal the greater part of their consciousness to the lower animals, or for the latter to make us know what they really feel. If force were in fact an affection of consciousness, or if, as may be argued on better grounds, the exertion of force implies consciousness of a certain kind as well, the true inference would be that there is conscious life in the inorganic, as well as in the organic world. Nor is there anything disturbing in such a supposition. We have no difficulty in attributing consciousness to an *amœba*; and whether plants have feelings has often been an open question. Our knowledge on the subject does not depend upon the fact itself, but upon the sufficiency of our own powers of observation in discerning the fact.

42. I have spoken frequently of mental elements, and in a manner which would make this paper incomplete without a few words on the question of elementary and composite existence.

The material world, as far as we know it, is not a single substance but is made out of many elements. These all possess one or two attributes in common, but in other respects they differ in their relations to each other, to space,

to time, and to the human mind. Gold and hydrogen, for example, stand nearly at the extremes of difference. In relation to other elements, their chemical affinities are different; in relation to space, their mass is different; in relation to time, the speed with which they affect or are affected by other agents, is different; in relation to our own minds, the one is a brilliant metal at common temperatures, while the other is an invisible gas.

But it has been and still is a favourite notion in philosophy that Matter is in fact only a single Thing, and that it assumes the appearance of many different things, only by reason of differences in its own condition. And when we consider closely what on this theory those differences could be, they resolve themselves into questions of quantity, of position, of arrangement of parts, and of modes of motion.

I believe this idea of a single fundamental substance of which the whole material universe exhibits only varieties of form and state, to be as unsupported by reasonable inference as it certainly is by actual experience.

43. The tendency of the mind to look with favour on those theories of existence which trace everything to a single common basis, a primordial homogeneous element, an essence which would be the same everywhere so long as its primitive condition remained undisturbed, seems easily accounted for. Our own conscious life and our separate states of consciousness have all a positive beginning. The habit of thought engendered by this fact leads us to look for positive beginnings everywhere. But we are haunted by the phantoms of Space and Time, neither of which will suffer a real beginning of things in general to be thought of; and the nearest approach we can make to it is in the idea of a quiescent something existing without change, and with the fewest possible attributes, from which all else may be evolved by the act of changing, so that to everything but itself the first change

will be a real beginning. Such an idea naturally excludes the conception of more than one original element, for the effort and need of the mind in forming the idea is to get rid of separate attributes, and to think of several elements is to multiply them. So it comes to pass that the notion of an absolute unity at the base of existence, because it is the easiest, becomes therefore the favourite method by which our mental habit asserts its power over us ; a power which is seen in the whole course of speculative philosophy, from the egg of Brahma to the modern centres of Force. And this is further strengthened by the undoubted fact that the resemblances in nature are as universal as the differences, and that all are indeed included in that kind of one-ness which we express by the words Purpose and Design. The great organ note affects us as if it were a single sound, but we overlook the fact that real unity and real harmony, not only have nothing in common, but mutually exclude each other.

44. If we turn from theories to experience, the progress of scientific discovery gives no support to the idea of a single original element in the material world. New substances which cannot be decomposed have come as the results of experimental decomposition. The number of these is always increasing, and seldom suffers diminution by the discovery that any two of them are in fact the same. Light and electricity confirm what chemistry pre-supposes. Atomic difference must be inferred from the phenomena of specific heat, if heat is motion. The wonderful variety which pervades and beautifies creation, and of which new worlds are opened to us by every new instrument of research, gives us strong reason to infer the reality of those elementary differences. For variety is difference, and the possibilities of difference admit of mathematical expression. A single material element can differ from itself, that is, its parts can differ from each other, only in quantity, form, place and

movement. No doubt immense variety is possible by these means alone, but consider what is added when two or more elements bring in all the changes that combination can procure. Every one knows the results when the numbers even are small, and the changes that could be rung on the sixty or more elements of our modern chemistry could only be represented by a row of figures miles in length and as incomprehensible as infinity. Whatever degree of variety a single element could produce, it would be multiplied in this extraordinary way if the elements were many. If we think of the universe as the work of a wise Creator, it is difficult to suppose that so powerful an instrument would have been left unused. If we reason upwards from the observed fact of inexhaustible variety in every direction, the fact is most easily accounted for by supposing the most prolific method to be engaged in its evolution.

45. If, leaving the theories which relate to matter, we turn to those by which mental facts are sought to be explained, a singular analogy is found between them. It has been the dream of ages that mental life in its highest form may be represented by the existence of one single mind, without parts or divisions, and in a condition absolutely devoid of change. The conception is a metaphysical, not a theological one, and is even inconsistent with most theological ideas, though it has an appearance of support in some of them. It has probably been more dwelt upon in ancient times and among eastern nations, than within the pale of Christendom; but it is nevertheless the philosophical basis of much modern speculation. As a statement of an existing fact, it is, like the notion of a single element in the material world, entirely unsupported by experience; and I take it to be, in like manner, the result only of the mind's habitual desire to fashion for itself the nearest possible approach to a Beginning of things.

46. Every close analysis of the phenomena of life leads to this ultimate conclusion, that mental existence, like material existence, is found, not in one, but in many elements, and that a conscious mind, like a material organisation, consists of these elements combined together.

I am not propounding a system of psychology, and I shall not, therefore, enter into any exhaustive analysis of these elemental parts. We can imagine a mental life which is a mere series of sensations, neither remembered nor anticipated; or one in which there is no consciousness of the present, and no idea of the future, but only a recollection of the past; or one in which the sole mental state is love for a particular object, or aversion, unaccompanied by thought. All these would be mental existences, but in other respects they would be different things, and as a life like our own could only be found where these and many others exist together in combination, they constitute the elements of such a life, the word being used, of course, in the qualified sense in which gold and silver are called elements in the material world. A subtler analyst may discover that they are compounds, though we have not discovered it; but they are, and always must be, distinguished by differences which are real. And whether they are thought of as qualities or essences, their elemental character remains the same. A mind without the faculty of memory, for example, would be as much, and in the same manner, changed by receiving that endowment, as by combining, if that were possible, with another mind possessing that faculty alone.

47. In what way mental existences are really formed, and how their elements come to be combined in various groups and proportions, we do not know; but we are in equal ignorance concerning the structure of the material world. And it is a singular mistake to suppose that the

simplest things are the most permanent, or that anything is lost when the grand results of combination have been gained. In the material world, a single uncombined element is rarely found, and is always liable to immediate change if brought into contact with other bodies. The earths are far more permanent than the metals. It is much easier to burn a diamond than to decompose a ruby ; and in the world of life, it is not among the lowest, but among the highest forms of mental organisation that the longest lives are observed. Nor is it difficult to understand these facts ; for a Being formed of every existing element in harmonious proportion would be not only perfect, but immortal ; perfect, because no excellence could be added ; immortal, because exempt from every element of decay. Here, if anywhere, we must look for that reconciliation between science and philosophy for which the world is waiting and hoping. It will not come from any denial of facts, whether mental or material. The facts assert themselves again and again, and are too strong for our theories. It will come from a better understanding of the relation between mind and matter, which is, indeed, the real subject of investigation when we inquire into the meaning of the word Force.

OUR UNIVERSITIES.

BY THE REV. J. A. McMULLEN, M.A.

IF the natives of the British Islands are inferior in education and intelligence to some of their Continental neighbours, it cannot be said that it is owing to either the paucity or the poverty of their great academical institutions, for we have in these countries no fewer than ten Universities, with revenues amounting to more than half a million sterling. Four of these are located in England,—Oxford, Cambridge, London and Durham ; four in Scotland,—Edinburgh, Aberdeen, Glasgow and St. Andrew's ; and two in Ireland,—Trinity College and the Queen's, both holding their sittings in Dublin ; and we are just now threatened with two more, the Catholic University in Ireland, and one for the Principality of Wales,—though what especial purpose the latter is to subserve is not easy to perceive, as the institutions we already possess are amply sufficient for the national wants, and amply sufficient to keep up the healthy stimulus of competition. In this paper I intend to deal with eight of them, omitting the University of Durham as being almost entirely devoted to ecclesiastical education, and rarely heard of outside the limits of the diocese to which it belongs ; and the University of London, because it does not educate, as the members of this Society are no doubt aware, but merely examines, and grants degrees.

It was not till the year 1855 that anything like a comparison could be instituted between them. Individually, they had all of them a very respectable opinion of their own

merits ; and though the pre-eminence in wealth and numbers was readily conceded to Cambridge and Oxford, that was considered by the others as the only distinction which they could justly claim. It was a moot question between Cambridge and some of the Scottish Universities, which turned out the best mathematicians. If England had produced a Newton, Scotland claimed a Ferguson, a Napier and a Leslie ; and even for the crown of classical scholarship rival candidates were put forward, Duncan and Dunbar were pitted against Porson, and those beautiful lyrics, the *Arun-dines Cami*, were looked on by the Scottish Universities as not to be mentioned in the same day with Buchanan's version of the Psalms, which it must be confessed are exquisite specimens of latinity. By both countries, the University of Dublin was voted completely out of the field. She had never done anything, either in Classics or Mathematics to entitle her to rank with the more ancient institutions. Cambridge, Oxford, Edinburgh, Glasgow, Aberdeen, and even St. Andrew's had sent forth alumni that spread the name and the fame of their scholars and scholarship far and wide ; and all looked down with contempt on the "silent sister," who had never said or done anything worth transmitting to posterity. The other Universities had flooded the world with publications, but Dublin looked forth on the efforts of her rivals with apathetic indifference, and appeared content with the production of political barristers and polemical parsons. Her six-and-thirty Fellows, who had incomes ranging from £400 to £2,000 per annum, and her Provost with the revenues of a Bishop, slumbered and grew fat in philosophic ease. They had made their fortunes when they won their fellowships, and waited tranquilly for the time that should elevate them to the episcopal or judicial bench, with smiles of pitying contempt for the hard-working tutors and professors of England and Scotland, who, if they

had only a rushlight to display, took care to set it in a blaze, and let the world see it.

The year 1855 produced a complete revolution in all this ; for in that year the East India Company threw open the splendid appointments of her Civil Service to public competition, and called to her aid several of the most distinguished scholars of the day to assist her in framing an examination programme, which should thoroughly test the merits of the candidates. The appointments ranged from £400 a year to £5,000, from simple writerships to judgeships in the Sudder Courts, and there was nothing to prevent a man from rising according to his abilities. Court favour, Directorial influence, and everything of that kind were to be set aside, and learning and talent to be the sole recommendations. The minimum salary of £400 was only for the first year after arriving in India, — to be devoted by the candidate to acquiring a knowledge of the language and customs of the district in which he was to reside. As soon as he was called to active service, he received between £600 and £700 ; and this handsome allowance was annually augmented at the rate of from £100 to £200 ; so that it was no uncommon thing for a young man of six-and-twenty to be in receipt of an income of £1,200 to £1,500. Here was a pagoda tree at once. It was consequently expected that the competitors would be numerous, and the Board of Examiners, among whom were Professors Max Müller, Heaviside, Dupont, Craik, Aribavene, Graves, and other distinguished scholars, set themselves to devise a scheme for the examination which should leave no loop-hole for any incompetent man to creep through.

The programme embraced no fewer than twelve subjects, to each of which they attached a certain numerical value. To English Composition they assigned five hundred marks, to English Literature, one thousand ; to the Language and

Literature of ancient Greece, seven hundred and fifty; the same to that of ancient Rome; to the Language and Literature of France, Germany, and Italy, three hundred and fifty each; the same to Sanscrit and Arabic; Pure and Mixed Mathematics were valued at one thousand; Moral Sciences, including Logic, Moral, Mental, and Political Philosophy, at five hundred; and Natural Science the same; in this was included Chemistry, Electricity, Magnetism, Natural History, Geology, and Mineralogy. The Examiners were nearly all, what is called in University language, "specialty men;" that is, they were distinguished for knowledge in one particular branch of science or literature; and it will be readily understood from this fact to what sort of an examination the candidates were subjected. In fact, the questions set were of the most crucial character, and there was probably not one on the Board of Examiners that could have answered the half of them. The candidates were allowed to take as many of the twelve subjects as they pleased, but they got no credit for any subject unless they answered a certain number of the questions given. While, to prevent mediocre men from coming up year after year, the limit of age was fixed at twenty-three.

The contest was awaited by all the Universities with keen interest. Oxford and Cambridge had heretofore no opportunity of testing their powers except in the annual boat race. Now they were called on to try their prowess in another field, and compete for the prize of intellectual pre-eminence; and they were not slow to avail themselves of the opportunity; while the tough countrymen of Bruce and Balliol,—who had hitherto had the lion's share in the appointments of the Company, as they manage to have in every good thing going, princesses included,—girt up the loins of their under-standing, and came once more to combat the southron on his own ground; the men of the two Irish Universities,

also, to whom the prospect was as unexpected as it was brilliant, came to the contest in considerable numbers.

Before I enter on the details of this great competition, I must beg leave to give a brief sketch of the position of the Universities, as regards the number of their students, and the inducements they offer them, that the society may be in a better position to estimate the relative advantages with which they entered the lists.

I have already alluded to the value of the thirty-six fellowships of Trinity College, Dublin. When I add that there are seventy scholars on the foundation, and thirty non-foundationers, whose emoluments in every way are about seventy pounds per annum, and forty sizars, who have dinners and rooms free—that she distributes a few dozen prizes of from £2 to £4, and a few premiums annually, and had the advowson of twenty-one livings, worth from £300 to £700 per annum, you have the entire number of the rewards she offered to her successful men. Practically, we may say that the rewards of learning were limited to her Scholarships, and Sizarships. Her Fellowships are tenable for life, and are so few that vacancies are not frequent, and the expectation of obtaining one is so distant, that it has little or no effect in drawing students. I need not, I suppose, add that the Fellows take the lion's share of the income of the University, which amounted at the date of the last commission to over £60,000; but within the past few years fourteen Studentships have been founded, of £100 per annum, tenable for seven years. If, however, the pecuniary inducements to enter the University are small, so are the expenses. The total cost to students, who keep terms by passing examinations, is only £15 per annum, and £7 10s. entrance, while residents need never exceed £60 to £70, inclusive of fees; and as a University education is in Ireland almost the only door to the professions, the

attendance is respectable, the number of students on the books ranging from eight hundred to a thousand.

The condition of the English Universities is so widely different, that one cannot help wondering that such an institution as the University of Dublin could be found growing up along with them in the same kingdom. The pecuniary inducements they offer to students are vastly greater, and the mode in which their income is distributed incomparably more liberal. Cambridge, with an income of £190,000, distributes among her eighteen hundred students, three hundred and fifty-six Fellowships, ranging from £160 to £400 a year, including rooms and commons; twenty-seven Professorships, averaging between £400 and £500, and rising, in the case of the Divinity Professor, to nearly £2,000; seventeen Masterships of Colleges, with salaries averaging from £600 to £700, and in one case rising to about £1,600; between five hundred and six hundred Scholarships, Sizarships, and Exhibitions, of from £40 a year to £100; three hundred and twenty College Livings, of which eight are over £1,000 per annum, sixty between £600 and £1,000, and the rest averaging between £300 and £400. Oxford, whose revenues were estimated at £160,000 at the time of the last commission, offers even greater inducements. Her students numbered in 1855 about fourteen hundred; and she distributes among them four hundred and twenty Fellowships, of nearly the same average value as those at Cambridge; forty Professorships, six of which range from £800 to £1,800 a year, and seventeen from £300 to £800; twenty-four Masterships, ranging from £300 to £2,000; some six hundred Scholarships, Sizarships, and Exhibitions, worth from £30 to £100 a year; more than four hundred College Livings, seventy-four of which are over £600, and the rest with incomes averaging between £300 and £400.

If, however, the inducements offered by these Univer-

sities are greater than those offered by Dublin, the expenses of a degree at either of them are considerably more; for though many young men of talent maintain themselves on the Exhibitions they bring from the schools in which they were educated, and those they win at the Universities, the cost of a degree may be set down at £280 to a Sizar, £680 to a Pensioner, £1,050 to a Fellow Commoner, and £1,400 to a nobleman; and these figures are considered as the lowest for which a steady young man can get through.

I now come to the Scottish Universities; and I may say at once that their leading features are comparative poverty and hard work. The emoluments of the Professors, independent of fees, are not large; and, as a matter of course, they are obliged to exert themselves in order to keep up the number of their pupils. There are no fellowships, no livings, on which superannuated professors may retire, and they generally die in harness; so that the students have the advantage of always having among their instructors men of ripe wisdom and long experience; and this is their principal attraction, for, beyond the value of the teaching, they have few inducements to offer. This, however, in the case of Edinburgh, has proved amply sufficient; for though she has only some eighty Bursaries and Scholarships, ranging from £12 to £120 per annum, tenable for four years at most, to distribute among her students, the attendance is quite equal to that at Oxford, being in 1855 over fourteen hundred. The total income of the University from endowments is under £10,000 per annum, and, including fees, about £30,000; but the greater part of this goes to the Professors, who, as I have already said, hold their appointments for life. There is, however, one element in the question, which must not be lost sight of. The Scottish student does not reside in the University, and he may consequently proportion the style of his living to the length of

his purse; and the sum total of the fees payable for a Degree in Arts does not exceed £50.

I regret that I have not been able to get statistics of the other Scottish Universities. The calendars I have seen do not mention the number of students, nor give any information from which the value of the Professorships could be calculated; and I can only state generally, that Aberdeen ranks next to Edinburgh as a place of education, and I believe in the number of its students. Glasgow and St. Andrews hold an inferior place in every respect. Some of the members present are perhaps in a position to supplement me on these points.

The Queen's University in Ireland comes last. She is, as I have no doubt the Society are aware, the creation of the late Sir Robert Peel, and the sagacity of that great statesman is evident in every feature of her constitution. Like the Scottish Universities, she is destined for hard work, but, unlike them, and in this respect resembling Oxford and Cambridge, she embraces three Colleges, and thus ensures a generous rivalry at the degree examinations, where the students of all three compete. In one important respect she differs from all other Universities; her Scholarships, of which there are a hundred and fifty, worth from £20 to £30 per annum, are only tenable for twelve months, and the student that wins one this year, may next year be displaced by a more industrious competitor. So that, in reality, her hundred and fifty scholarships are only equivalent to forty of the same value, tenable for four years as at Edinburgh, or twenty-five, tenable for seven years as at Trinity College, Dublin. There are, it is true, three Presidents, receiving about £1,000 per annum each; three Vice-Presidents, receiving £500; and some seventy Professors, with salaries which, range from £200 to £600 including fees; but these appointments are all in the hands

of Government, and, to the disgrace of the executive, and the bitter disappointment of the distinguished students of the University, they have been hitherto filled up by Court influence, often with inferior men, and generally with Englishmen or Scotchmen. On the other hand, however, the fees are extremely moderate; the total expense of the B.A. degree, inclusive of tutors' and professors' fees, being to an ordinary student £22; and to a scholar only half that sum; and as the students do not reside in the Colleges, they can live as cheaply as they please. The reader of this paper attended one of them when they opened, and made the £30, which he received as scholar, cover all his expenses for the college year.

You are aware that one of the objects proposed by Sir Robert Peel, in founding this University, was to bring the leading spirits of the different religious sects which distract that country into friendly contact; and this has been, to a considerable extent, attained; for, notwithstanding the name of Godless Colleges imposed on them when they opened in 1849, in 1860, just eleven years after their foundation, they were attended by five hundred and forty-six students, one hundred and seventy-five of whom were Presbyterians, one hundred and sixty-nine Roman Catholics, one hundred and forty-three members of the Church of England, and fifty-nine of other denominations.

Having thus laid before you the advantages offered to students by the different Universities, I shall proceed to the results of the India Civil Service competition. In the first year, which I have already said was 1855, some two hundred and fifty candidates sent in their names, but when the day of examination arrived, only one hundred and five presented themselves. The first place was won by a student of University College, London, who took eight of the subjects, was best in Moral Science and German,

making fair answering in these two subjects, and but moderate in the rest. A Cambridge man followed, taking nine subjects, and distinguishing himself in none. The third place was won by another Cambridge man, who took but five subjects, and owed his position to his splendid answering in Classics. Oxford holds fifth place, Edinburgh sixth, King's College, London, fourteenth, Queen's College, Galway, nineteenth, and Cork the last, the other Scottish Universities, and Trinity College, Dublin, being nowhere. Cambridge sent the best Classic and the best Mathematician, the best in English Composition, and the best in English Literature; London and Edinburgh, the two best in Moral Sciences; King's College, London, the best in Arabic; and University College, London, the best in French, German, and Italian. The final result was that University College got two of the appointments, King's College one, Edinburgh one, Cambridge six, Oxford eight, and the Queen's Colleges, Ireland, two.

I remember well what a sore feeling there was in the University of Dublin when the list was published. I became a student there in 1856, the year after the examination, and the feeling was even then very intense. The excuse offered was that the course of examination was not anticipated; that the Examiners, with one exception, were all from English Universities; and that the Irish students had not a fair chance. *Punch* took it up, and found a fertile source of jokes in this lame explanation; and it is not too much to say that the Professors of T. C. D. winced under the ridicule, and did what was better, set themselves to remodel their system. Up to that time classical learning there consisted in being able to translate a certain number of books fluently at sight. Critical knowledge was held in slight esteem; while the favourite branch of mathematics was plane geometry, and this was cultivated

to an extent unprecedented in University history. Questions involving anharmonic ratios, and problems in optics and other branches of natural philosophy, were solved geometrically, and an immense amount of time and talent was expended in acquiring perfection in a species of knowledge almost as useless as it was obsolete. To gain the fluency required in translating from the Greek and Latin authors, the books were read again and again; and it was no uncommon thing to meet a man who could repeat from memory the whole of Virgil or Horace, who could not have written a page of correct Latin. The year 1855 put an end to all this. The classical course was modified on the English plan. Geometry was relegated to its proper place, and the study of modern languages introduced. The result was apparent at the following year's competition; for of twenty-one vacancies she won four, sending forward the best man in English Literature and Composition, the best and second best in Moral Science, and the third best in Mathematics. The honours of this year, however, belong to Cambridge, which sent in one of the most brilliant scholars that ever graced her halls, who, taking up five subjects, won first place, being best in Mathematics and best in Classics. University College, London, took second and third places, sending the second best man in Classics; Marischal College, Aberdeen, stood fifth; and Queen's College, Cork, fifteenth. Of the twenty-one vacancies, Cambridge won seven, Oxford and Dublin four each, Aberdeen two, University College, London, two, and Cork one. There were only fifty-six candidates, but twenty-one of the unsuccessful men obtained higher marks than the lowest successful candidate of the previous year; two facts which sufficiently indicate the character of the struggle, and the improvement the competition of the previous year had already effected in the work of the Universities.

In 1857 there were only twelve vacancies, and the honours of the year belong to Queen's College, Belfast, which obtained the first, fourth, and tenth places, Edinburgh coming third, Cambridge fifth, and Oxford sixth. Belfast was best and second best in Mathematics, best and second best in English, best and second best in Moral Science, and shares with Oxford the first place in French. Oxford was best and second best in Classics, and shares with Belfast the first place in French. The final result was that Oxford won five places, Belfast three, Edinburgh one, Dublin one, Cambridge one.

The year 1858 will be long remembered in the annals of the Civil Service competition. Oxford had seen herself headed by Cambridge at every examination hitherto; and Trinity College, Dublin, had not only seen herself defeated by her vigorous young rival, the Queen's University, but had absolutely beheld her at the head of the list the last year; so it was well understood that both Oxford and Dublin would put forth their strength at this examination, and that it would be the most severely contested struggle that had hitherto taken place; and bets ran high among the sporting members of the colleges. There were but twenty-one vacancies, and Oxford sent forward no fewer than twenty-four men, seven of whom had taken first class, and all but two were high scholars and exhibitioners. Even a Fellow of New College forgot his dignity, and came to try his luck with the rest. Cambridge sent forward seven men; one, a wrangler, who had also distinguished himself in Classics and Natural Science, another a first class in Classics, another a high double second. Trinity College, Dublin, sent forward seven, all men of standing, and the Queen's Colleges two. The total number of candidates was sixty-three, and the final result showed what power public opinion has even on such august and learned conclaves as University Boards; for this

time Dublin, with only seven men, won six places, standing first, second, and third, sending in the two best in English, the two best in Mathematics, the two best in Classics, the two best in Moral Science, the second best in German, and the best in Italian. Oxford obtained fourth place, and sent in the best and third best in Sanscrit. Edinburgh held a good fifth, and sent in the best in Arabic, and second best in Sanscrit. The highest place obtained by Cambridge was thirteenth; her wrangler being third best in Mathematics, two Dublin men coming in before him. The final result was that Cambridge, with seven men, won three places; Dublin, with seven men, won six places; Oxford, with twenty-four men, won nine places; Edinburgh, with two men, won one place; London (King's and University), with three men, won one place. The Queen's Colleges and Aberdeen sent five, all unsuccessful. The severity of the competition will be best understood by the standing of the rejected candidates, for among them were Boulter and Bridgman Exhibitioners, a student of Christ Church, a Fellow of New College, and other distinguished men, four of whom had taken first class. I shall not detain the Society by going thus minutely through the subsequent examinations, but content myself with stating results. In 1859 there were forty vacancies, and the honours once more fell to the Irish Universities, for Dublin again shows first, and Belfast second; Dublin sent nine men, and won seven places; Queen's sent ten men, and won three. Dublin was best in Latin and Italian, Belfast in Moral Sciences. Oxford sent twenty-six men, and won twelve places; was best in Greek, and shares the first place in French with Edinburgh. Cambridge sent twenty-four men, and won nine places, was best in English Composition, Mathematics, Natural Science, and Arabic, but got only eleventh place in the competition. Edinburgh stands third on the list, sends forward four men,

and wins three places, getting best in German, and shares with Oxford the first place in French.

In 1860, no fewer than eighty appointments were thrown open, and the honours of the year at length fall to Oxford. She sends forward twenty-one men, wins fourteen places, and heads the list, sending the best Latin and Greek scholar. Aberdeen stands second, sending five men, and winning four places, is best in Moral Science, and shares with Dublin the first place in English Composition. Dublin sends seventeen men, and wins twelve places; is best in French, German, Italian, Sanscrit, and Arabic, and shares with Aberdeen the best mark in English Composition. The Queen's sends seven men, wins six places, Belfast being best in Mathematics and Natural Science. Edinburgh sends five men, and wins three places; London eleven men, and wins five places. The Schools enter the lists this year, and compete successfully with the Universities, winning thirteen places.

In 1861 there were sixty-eight vacancies; and this time Aberdeen, which had been second the previous year, heads the list, sending five men, and winning two places, being first in Mathematics, and first in Natural Science. Cambridge stands second, sends thirty-four men, wins fifteen places, is best in English Literature, Greek, and German, and shares with Glasgow, which appears in the winning list this year for the first time, the honour of sending the best man in Moral Science. Oxford sends thirty-six men, wins twenty-four places, and is best in English Literature, Latin, and French. Dublin twenty-seven men, wins nineteen places, and is again best in Sanscrit and Arabic. Glasgow, with four men, wins one place; and London, with sixteen, wins three. Before proceeding further, I would call the attention of the Society to a noteworthy fact. It appears to be the general rule that when a University distinguishes itself in one year, it does

so in two or three, and then slackens ; the inference is unavoidable, that it is not the quality of the students that makes this difference, but the quality of the teaching. Under the great stimulus of public competition and public notoriety, the University Professors were goaded into making a spurt, and carried their pupils up while it lasted ; but when they had shown what they could do, they were satisfied with the glory they had acquired, and from that time took matters more easily. We have seen University College, London, first in 1855, and third in 1856 ; Belfast first in 1857, and second in 1858 ; Dublin first in 1858 and 1859 ; Aberdeen second in 1860 and 1861 ; and, what is more remarkable, and conclusive of the principle that I wish to establish, is, that Oxford and Cambridge, which do not gather all the men of a year together in one class, and teach them simultaneously, and which have no proper professorial system, though they possess a most elaborate and expensive professorial machinery, are the only Universities that vary from the rule. This year the Schools again send in thirteen successful men.

The year 1862 may be called emphatically the Crammers' year, for the first and second places were won by pupils of private educational establishments on the multifarious mediocrity principle. One of them took up nine subjects and another ten, and out of eighty-two vacancies thrown open, public and private schools won no fewer than twenty. The main cause of this was that the limit of age had been reduced to twenty-one, and it had been found that for well-educated young men a cramming school was almost as certain, and a far less expensive mode of making up for examination than a University ; and schools of this kind had been formed, here and there, through the country, by associations of some three or four distinguished scholars ; the peculiarities and idiosyncrasies of the examiners had been

carefully marked, and the uninitiated public have very little idea how completely the line of an examiner's thoughts can be gauged, and how fully the questions he is likely to give can be anticipated, by those who make it their business to study him. Oxford this year sent twenty-six men, won fifteen places, was best in English Composition, best in Latin, and shares with Dublin the best place in Greek. Cambridge sends twenty men, and wins ten places. Dublin sends twenty-five, and wins twelve places, is best in Sanscrit for the third time consecutively, and shares with Oxford the first place in Greek. The Queen's University does well, for, though sending only eight men, she wins six places, and is best in Mathematics and Natural Sciences. Edinburgh sends nine, and wins eight places. Aberdeen five, and wins four places. University College, London, sends three,—wins two places, and is best in Arabic. King's sends nine, wins four places, and is best in English Literature and German.

The successful results of the cramming system in 1862 told remarkably on the Universities in 1863, for out of one hundred and eighty-nine candidates who presented themselves, the Schools sent eighty-three, and won twenty-three places. A gentleman who had been at Edinburgh, and subsequently at Berlin, heads the list this year; counting him, Edinburgh sends six, and wins three places, being best in French, German, Italian, and Moral Science; Oxford sends twenty-three, and is best in English Composition; Cambridge sends sixteen, wins nine places, and is best in Greek; Dublin twenty-six, wins seven places, and is best in Latin and Mathematics. With the year 1863, the interest of the contest, so far as the Universities are concerned, terminates. From that year the Government Reports ceased to give the Universities which sent the best men, giving only the number of successful and unsuccessful candidates from each. In 1864

the age was still further reduced, and twenty made the limit, which had the effect of greatly increasing the number of candidates from the Schools, and diminishing the number from the Universities; and the only remarkable feature about the contest since, is that St. Andrew's has begun to send in a successful man occasionally; while the proportion of unsuccessful to successful men from the others has greatly increased, Oxford being the only one that seems to do even moderately well.* I cannot, however, dismiss the year 1868 without mentioning that the Liverpool Schools were well represented at the competition—the third and the fifty-third places were won by pupils of the Royal Institution, the twenty-eighth and fifty-seventh by the pupils of the Collegiate, the thirty-first by the pupil of an individual who shall be nameless.

Summing up these statistics for the nine years during which the Universities were fairly pitted against each other, we find that Dublin won two first appointments and two second, was best in English Composition three times, in English Literature twice, in Greek three times, in Latin twice, in French once, in German once, in Italian three times, in Mathematics twice, in Natural Science once, in Moral Science twice, in Sanscrit three times, and in Arabic twice.

Cambridge won one first appointment and two second, was best in English Composition twice, in English Literature three times, in Greek twice, in Latin once, in French never, in German twice, in Italian twice, in Mathematics three times, in Natural Science twice, in Moral Science once, in Sanscrit never, in Arabic once.

Oxford won one first appointment, was best in English Composition three times, in English Literature never, in Greek four times, in Latin five times, in French five times,

* Owing, probably, to the rule, that no man is allowed to compete for Honours there if over eighteen at entering.

in German never, in Italian never, in Mathematics never, in Natural Science never, in Moral Science never, in Sanscrit three times, in Arabic never.

Belfast won one first appointment and one second, was best in English Composition once, in English Literature once, in Greek never, in Latin never, in French once, in German never, in Italian never, in Mathematics twice, in Natural Science twice, in Moral Science three times, in Sanscrit and Arabic never.

University College, London, won one first appointment and one second, was best in Greek and Latin never, in English Composition never, in English Literature never, in French once, in German once, in Italian twice, in Mathematics never, in Natural Science once, in Moral Science once, in Sanscrit never, in Arabic once.

Aberdeen won one first appointment and one second, was best in English Composition once, in English Literature, Latin, Greek, and French never, in German once, in Italian never, Mathematics once, in Natural Science once, in Moral Science once, in Sanscrit and Arabic never.

Only one Edinburgh man won a first appointment, and as he was subsequently at Berlin, his success can scarcely be ascribed to her; she was best in French twice, in German twice, in Moral Science twice, in Arabic once, and never in English Composition, English Literature, Greek, Latin, Italian, Mathematics, Natural Science or Sanscrit.

King's College, London, was best in English Literature twice, in German once, in Arabic once.

It appears, then, that the University of Dublin, which began so badly, comes out first in the nine years' struggle, winning twenty-five first places, and distinguishing herself in all the twelve subjects. Cambridge wins nineteen first places, and distinguishes herself in ten of the subjects. Oxford gets twenty first places, and distinguishes herself in

five subjects. Belfast gets ten first places, and distinguishes herself in six subjects. University College, London, gets seven first places, and distinguishes herself in six subjects. Edinburgh gets seven first places, and distinguishes herself in four subjects. Aberdeen gets five first places, and distinguishes herself in five subjects.

These statistics rather disturb preconceived opinions. Cambridge, indeed, still holds her pre-eminence as a place of mathematical instruction, but we were hardly prepared to expect that Dublin, which has not half the students that she has, should beat her in Classics, and push her so closely in Mathematics; that while Cambridge is first three times, Dublin is first twice. Neither should we have expected that such comparatively unimportant institutions as Belfast, Cork, and Aberdeen, none of which has, as I believe, three hundred students, would bear away the palm from both so frequently. Oxford, we see, still holds her pre-eminence as a Classical school, but Dublin comes next, and presses her closely in this her favourite subject; while in Mathematics Oxford makes no figure whatever, and distinguishes herself in so few subjects, that the conclusion is forced upon us that, as a place of general education, she is altogether behind the wants of the age. But the position of Edinburgh is more remarkable still. With her high prestige and large number of students, in which she equals Oxford, we should have expected her to take the lead in everything; whereas she is only fifth on the list, Dublin, Oxford, Cambridge, and Belfast being before her, while in the higher branches of study she is beaten even by Cork and Aberdeen. In fact, she only distinguishes herself in four subjects (and these the easiest in the programme), French, German, Moral Science, and Arabic; and it is impossible to avoid the inference that a position is assigned to her among our institutions altogether beyond her merits. Of the two London Colleges, it

may be said that they distinguished themselves in much the same class of subjects as Edinburgh ; that King's College is below Edinburgh as a place of general education, and University College above her. Finally, ranging them all as places of general education, Dublin stands first, Cambridge second, Belfast third, University College, London, fourth, Aberdeen fifth, Oxford sixth, Edinburgh seventh, King's College, London, eighth, Glasgow ninth, St. Andrew's tenth.

HISTORY OF THE ENGLISH ALPHABET.

By THOMAS INMAN, M.D.

If in some far distant age, when England shall have lost her ships, her colonies, and her commerce,—should such a time ever arrive,—a philosopher shall endeavour to trace the present extent of her power and influence, he will fasten on the fact that the alphabet she used was taught in about three-fourths of the habitable globe. In saying this we do not pretend that Spain and Italy, France and Portugal, have derived their letters from us ; all that we wish to affirm is, that British missionaries have carried the Roman letters and the Arabic numerals which we employ into almost every known locality where writing, reading, and ciphering were before unknown. The fact that the aborigines of New Zealand can study books printed in their own language, but in Roman type, if it stood alone, suffices to demonstrate that it has been visited, taught, or colonised by an enterprising race, who derived its own civilisation from a very ancient source.

We see the value of this fact when we contemplate the alphabets of other peoples. Let us take as our primary illustration the Sanscrit, whose first known alphabet is about the age of Alexander. This, though based upon a still older system, and modified by contact with the Aramaic, is almost confined to Hindostan. The old Buddhists, who employed the language of the Vedas, were, at one period of their history, an enterprising and missionary-sending body. The preachers who taught the doctrines of Sakya Muni, spread over Birmah, Ceylon, Japan, China, Thibet, Hindostan, and, I believe, they travelled as far as Greece and Western Asia ;

but they did not carry with them the power of writing in the Sanscrit character, or, if they did, the faculty was soon lost. In like manner, the Chinese have existed as a partially civilised, and certainly a very industrious, race for many thousand years, yet, so far as we know, her seafaring folk never propagated their method of writing farther than Japan.

Then, again, we may point to Egypt, and to a written language of a certain kind, whose origin has recently been thrown back to nearly twenty thousand years ago. That country, wealthy in men, women, gods, and priests, in a wonderful river and a climate of the most valuable, possessed of ships, and of a traffic which there is some reason to believe exchanged materials of merchandise with China, never propagated her alphabet among foreign nations. Nay, she even lost it in her own land.

On the other hand, there was a race which, being adventurous like ourselves, carried with them almost wherever they went the seeds of written knowledge and the power to propagate it. To this people the name of Semitic has been given. We find them in Babylonia about six thousand years ago, and in later periods in Syria, Palestine, and Arabia. In early times, they, or a portion of them, used letters to which the name of Cuneatic has been given, but of these we will take no notice. A part of the same family, however, instead of settling on the banks of the Tigris and Euphrates, went, like bold shipmen as they were, sailing westward until they reached the head of the Red Sea; on they went, across the Isthmus of Suez, and settled upon the eastern shore of the Mediterranean. Zidon was their chief city, and they spread themselves gradually abroad until they occupied a considerable territory. There is strong reason to believe that prior to their time Palestine was thinly peopled. Indeed, it is doubtful if there were any inhabitants, for the languages of the Canaanites generally, of the Jews, of the Zidonians, of

the Tyrians, and subsequently of the Carthaginians, were essentially the same.

But this branch of the Shemites did not bring with them the system of Cuneatic writing, or, if they did, it soon became lost or abandoned, for no remains of it can be found in any form in Palestine or Carthage.

Amongst this people, named Canaanite or Phœnician, a certain alphabet is found, which there is every reason to believe is the prototype of our own. It has been discovered side by side with the Cuneatic in the muniment rooms of ancient Assyrian kings, wherein bilingual inscriptions tell that traders of Tyre and merchants of Asshur, though using a cognate language, adopted different methods of reducing it to writing. How this may have happened we can easily conceive, by supposing that Germans in America may have so fully adopted the use of Roman letters as to forget their original writing, and by assuming that these come as traders to the mother country, speaking her language, but ignorant of her method of writing it.

Everything connected with these bilingual inscriptions speaks of trade. We have, for example, the positive statement that a certain agreement is between a man of Tyre and one of Assyria. Another, in which occurs the name of an Assyrian, or other Semitic man, who at one time resided in Ireland, in whose soil the gem bearing the writing was found, indicates a traffic in slaves.

Without pursuing this, we may shortly sum up the archæological evidence of very ancient commerce thus. Fortune has found, in Chinese curiosity shops, porcelain, and other forms of Egyptian art, whose extreme age is not doubted by scholars. In like manner, Chinese curiosities have been found in the tombs of notables buried by the banks of the Nile. Still farther, small cubical seals of white China, each face covered with inscriptions in very archaic Chinese

characters, were found, eighteen feet below the surface of the ground, by workmen who were digging the foundations for Kilmainham gaol, near Dublin. Nor must we pass by the apparent evidence of the antiquity of trade which is given in Genesis xxxvii. 25, 28, in which we are told that certain Ishmeelites or Midianites were passing through Palestine as merchants, with a convoy of desert ships, or camels, to Egypt. We will not dwell upon the nature of the cargo, farther than to assert that, whatever it was, the materials did not exist in Egypt, and were brought thereto from a distance. Later again, as would appear from the narrative, we find distinct evidence of Solomon, by the assistance of Phœnician shipmen, having communication with a land so remote that three years elapsed between the commencement and the end of the voyage thereto. As far as chronologists are able to go, they find reason to believe that the reign of Solomon was subsequent to the hypothetical era of the Trojan War. The ordinary date assigned to the Jewish monarch is B. C. 1000. In his time, Zidon was fallen into insignificance, and Tyre had become the chief Phœnician city of Palestine. At the time of the Trojan War, whether we regard that fight as simply invented by a poet, or a stern reality, Zidon was the capital town, and Tyre almost unknown. Consequently, we feel at liberty to assume that we may use the *Iliad* and the *Odyssey* of Homer as in some small degree like historical documents.

We shall not draw upon this assumed privilege at present, farther than to affirm that at the date in question ships were abundant, distant voyages were made, and the powers of transport were such as to enable the Greeks to undertake a distant warlike expedition. The siege of Troy, in some respects, bears a comparison with the more modern attack upon Sebastopol. Still farther, the works of Homer bear evidence that there was a traffic in metals between the north

shore of the Euxine and Cyprus, in articles of luxury between the Trojans and the Zidonians, and between Egypt and Troy in drugs. Leaving the *Iliad* for a while, and passing over the fall of Zidon, we fix our attention for a moment on the founding of Carthage. History—such as it is—fixes the date of this at B. C. 878, or about one hundred and twenty years after the era of Solomon. But the same authority tells us of the existence of Utica, at the time when Dido founded her city, and that the former was already designated as 'old'; consequently, we shall not be far wrong if we assert that Tyre had at least one distant colony a thousand years before our era.

I must also call attention to the fact that, at the time when the Hebrew Joel and Amos prophesied, as the phrase runs, *i. e.*, about B. C. 800, there is evidence of a slave trade carried on between Edomites, Tyrians and Grecians; for in Joel iii. 6, we are distinctly told that many Jewish captives, taken in a sacking of Jerusalem, of which theologians in the present day seem to know little, were sold to the Grecians (Javanim) for the express purpose of removing them far from Judea.

We may now shortly advert to the assertion, which is, I believe, founded in absolute fact, that a naval expedition, at a very remote period, circumnavigated Africa, setting out from the Mediterranean, and returning by the Red Sea. I only adduce the statement as corroborative proof of the great enterprise of Phœnician rulers, merchants, and seamen.

After having thus examined the evidence of trade, we proceed to the consideration of the diffusion of the knowledge of writing. We are told by Herodotus, that there was a current belief in his day that the Greeks derived their alphabet from the Phœnicians, and that it was introduced by a man named Cadmus. Without discussing the amount of credit to be given to this account, we content ourselves with

the remark that the Grecians assign to him a date prior to the Trojan War, placing him apparently somewhere between 1200 and 1300 B.C. One or two passages in Homer point—as Gladstone observes—to the fact that writing was known in Homer's time, though very sparsely used. In this respect we may compare the Grecian warriors to the British barons, and even kings, of the dark ages, who thought book-learning only good for priests, and who never cared to write or read.

If we now turn to those books of Jewish history which appear to have a certain amount of real historical value,—and in this class I am bound to say that I cannot include any prior in arrangement to those of Samuel,* inasmuch as they bear internal evidence of having been fabricated subsequently to the accession of Josiah,—there is no trace of the use of writing, that I can discover, to be found in the early days of David. For example, when Jonathan, the son of Saul, the Jewish monarch, wants to have a secret communication with the future king, he has recourse to a sort of symbolic stratagem, 1 Sam. xx. 19, 22, 35, 39, although a written line would have told far more, and would have been more readily concealed. In like manner, when Abner communicates with David, after the death of Saul (2 Sam. iii. 12), he sends messengers to say what he wants, not to carry a letter. The expression is generally, “it was told King David, saying.”

* As it is undesirable, or rather injudicious, in an Essay like this, to enter critically into Biblical history, I do not like to say how much I distrust even the books of Samuel. One single quotation suffices, in my opinion, to vitiate the opening history. In 1 Sam. i. 9, we read, “Now Eli the priest sat upon a seat by a post of the temple of the Lord.” In the same books, 1 Sam. iii. 3, 2 Sam. xxii. 7, there are other references to “the temple,” *הֵיכָל*, *hehchal*, a word essentially post-Babylonian. I have also shown elsewhere that the Thesmophoriazuzæ, where Eli's sons are said to have behaved wickedly, was a Grecian festival, which was only known to the Hebrews after the Hellenic captivity spoken of by Joel, and noticed but once again in the Bible, viz., in Ezekiel, where women are spoken of as weeping for Tammuz. It must be observed that the real age of a book may be tested by its anachronisms. Any Englishman, who met with an account of the Electric Telegraph in a volume purporting to be a history of Henry II., would know when the interpolation was made. We must judge all books by the same critical standard.

Yet when this Jewish monarch had succeeded in capturing a strong town, and assumed a style somewhat resembling that of the king of Tyre,—whose soldier he probably had been, and whose friend he was,—he procured for himself a recorder, remembrancer, or writer of chronicles, and a scribe or secretary (2 Sam. viii. 16, 17).

We see the first evidence of an epistle being sent from one person to another in the remarkable history of Uriah, 2 Sam. xi., in which we are told (ver. 14), that David wrote a letter to Joab, and sent it by the hand of Uriah. From this we presume that the warrior was unable to read the missive, either because it was sealed in some way, or because he was illiterate. This story, which we have no valid reason for doubting, leads us to believe that alphabetical writing was occasionally used in David's time.

Compare this story of Uriah with that told in the sixth book of the *Iliad*, in which we find that Prætus, being desirous of getting rid of Bellerophon, who had acted the part of the biblical Joseph, and with a like result, sent him to Lycia, to the father of Antea, Prætus' wife. Bellerophon was directed to carry with him a written letter, sealed, and to deliver this to the king of Lycia, to the end that the monarch should put him to death.

That writing was unknown to David and his sons, and to Joab also, I infer from other parts, in which Absalom sends messengers to Joab to ask for an interview, and has to resort to stratagem, instead of epistolary correspondence, 2 Sam. xiv. 29, *et seq.* Again, when Absalom drove his father from Jerusalem, the latter makes no provision for a written communication,—not taking, perhaps, his secretary with him,—but contrives a plan for verbal communication; thus running the great danger of the messengers' misunderstanding the message, which they only received at second hand (2 Sam. xvii. 16, 17). Even so important an event as the substitution of

Amasa for Joab is arranged by word of mouth, rather than by letter. After this, we find that the recorder has died and been succeeded by his son, and that a new scribe has been installed. In Solomon's reign we find two fresh scribes or secretaries mentioned, and the same recorder as in the reign of David.


But, notwithstanding this, we notice that when Solomon wants to communicate with Hiram, king of Tyre (1 Kings v.), he sends envoys with a message, not with an epistle, and Hiram "heard," not read, the words of the Jewish monarch. Hence we infer that the art of writing, though known, was not yet fully appreciated or extensively used.

If we now inquire what the alphabet in use at this time was, we find that the evidence amounts to this:—the Carthaginians of Africa, destroyed B. C. 146; the Moabites of the time of Ahab, or thereabouts, B. C. 900; the Tyrians in the reign of Eshmunazar, B. C. 600; certain Assyrians in Nineveh about B. C. 700; and the Jews in the time of the Maccabees, about B. C. 166, had all an alphabet, whose letters so closely resemble each other that we must assign to them a common origin. Between the ancient and modern Hebrew characters there is very little resemblance.

Much discussion has taken place about the probable origin of the alphabet of the Palestinians. Some assign its invention to the exigencies of traffic, and think that letters were used in keeping accounts, or in sending advices to distant agents. Others maintain that letters had their origin amongst a pastoral people, who had plenty of leisure, and a disposition to think practically upon subjects not generally known. In support of this hypothesis, the early Aryans are adduced, who are supposed to have been a people not much unlike the present race of Tartars, or the ancient Jews as they are described to have been in the patriarchal times.*

* It is assumed that these Aryans invented what we call the Sanscrit method of writing, and used it in the compilation of their sacred books. But these ideas

To this argument is added the fact that the names given to the letters of the Hebrew alphabet, and which are supposed to be identical with those of the earliest times, are drawn from objects which are far more familiar to the herdmaster than to the general merchant. This hypothesis still farther embraces the idea that the original letters were pictorial, or conventionally symbolic, and that the Palestinian alphabet is the offspring of a certain form of hieroglyphical writing. Into this discussion it is unprofitable to enter. We may, however, remark in passing, that the Sanscrit alphabetic letters are not named after objects of natural history, but by an imita-

tion of their sounds. A  is an audible sigh—ah—in the Vedic, whilst in the Hebrew it is “an ox” (N aleph). The Greeks borrowed the names of the letters, as well as the alphabet, from the Canaanites; but when the Italians borrowed the same letters from the Greeks,—if, indeed, they did so,—they did not, apparently, adopt the archaic names. A was a, not *aleph* nor *alpha*; B was ba, not *beth* nor *beta*.





There is yet another subject which I must pass by with scanty notice, viz., the way in which words were composed and written when an alphabet was first invented. It is difficult to place ourselves in the shoes of him who first discovered a plan for representing to the eye, that which had hitherto been recognised by the ear only. I honour, most profoundly, every discoverer of an alphabet. Often in the silence of night, or during a solitary watch at a railway station, when waiting for a coming train, have I endeavoured to place myself in the position of a man who, never having

are not altogether tenable, for the very earliest authentic specimen of Indian writing is not older than about B. C. 250. About that period, two inscriptions were made, both of which are extant. One at Kapurdigiri is written like the Phœnician, from right to left, and is apparently of Semitic origin. The second, that of Girnār, which is supposed to be the type of all other Indian alphabets, as well as those of Thibet and Burmah, is independent of the Semitic.—M. Müller's *Sanskrit Grammar*, *Journal Royal Asiatic Society*, vol. viii. 302, 303; xii. 153.



heard of such a thing as writing, first adopted the idea of rendering sounds cognizable by the eye, and, secondly, was able to teach his system to others. Given the notion, it is comparatively easy to invent the details. Whence the idea came, of representing sounds by signs, no one can tell; but we know that it has occurred to many persons, living in widely distant localities, each of whom has adopted a different plan of symbolism.







Let us pause for a moment here, and ask "how a multiplicity of ancient alphabets tallies with some of the current ideas of the original savagery of man?" That which we call civilisation has been gradually expanding for many thousand years, and preeminently so during the last hundred, and yet we content ourselves with using the rude and insufficient alphabet, invented in ages so remote that none can tell the real date. The same signs represent different sounds in contiguous countries; and I believe that it was reserved for our own day to find out a plan by which every known sound could be represented by its own peculiar symbol. Yet the scheme meets with no public favour, and is almost unknown.



But if I were to enter upon the subject of sounds, as well as their symbols, my task would be almost infinite. I shall, therefore, endeavour to restrict myself to the history of alphabetical signs. There were twenty-two of these in what is supposed to be the most ancient Palestinian alphabet, as shown upon the Moabite Stone, how we came to have four additional signs we will enquire by-and-by.

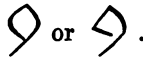

The letter which we call A, and which the Hebrews call aleph—an ox—is formed  on the Moabite Stone, in ancient Phœnician, . In Assyrian, . In more recent Phœnician, and Numidian, . In certain Carthaginian inscrip-



tions it is made thus, . In ancient Hebrew

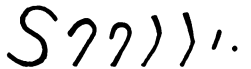

it was  essentially the same as the Phœnician. In the Archaic Grecian the same letter is found formed thus, .









In ancient Italy this sign became  amongst the Umbri;  amongst the Oscans;  amongst the Volsci;  amongst the Etruscans and Faliscans;  amongst the northern Italians;  amongst the Samnites,




and amongst the Romans  amongst the Celtiberians of Spain, the same letter was . I scarcely need add, that the later Greeks, like the Romans, ultimately adopted the form with which we are now familiar.






In all the alphabets to which we have above referred, the letter B comes after A, and there is less variation in the sign used than in many other letters. In the inscription on the Moabite Stone it is given thus, . In the ancient Phœnician it was , and sometimes

, the essential part being the curved down stroke, which distinguished it from D and R. In Assyrian , in more modern Phœnician, and in Numidian, it became


. In the early Hebrew it was .

In the Carthaginian it was , or more sharply angular, . In the ancient Greek the sign of B was , or , according as the writer guided his pen from right to left or left to right. Amongst the Volsci it was ; amongst the Umbri ; amongst the Samnites and Oscans ; and amongst the Romans and later Greeks . The Etruscans do not appear to have used the letter.


Our letter C may be traced in form to the ancient Greek  **G**, which was somewhat like the Etruscan; it is also similar to one form of the old Greek  **S**, which was made precisely like our  **C**. In connection with this we must notice that our **C** has two distinct sounds, one of which is *s*, as in fancy, cease, cell, the other being a *k* sound, as in cart, cabbage, and cucumber. The *k* sound tallies with one of the forms of **K** amongst the Etrurians, Faliscans, and Romans, the letter


being written , or, subsequently,  **K**  **C**. In point of fact, **C** appears to have been a , or  without a down stroke, and this has been turned round when the method of writing altered. I am inclined to trace our **C** to both the sources indicated, and thus to explain its double phonetic value. There is little doubt that it came to us through the Romans, and amongst them had the sound of **K**, *e.g.*, *cerastes* = *κεράστης*, and *ceras* = *κέρας*.



The letter **D** has a remarkable history, and is so frequently associated with **R**, that we had better say what we have to say respecting them together.


In the earliest known alphabet, found on the Moabite Stone, the letter **D** is a simple triangle , sometimes

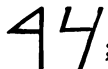

with a very small rudimentary down-stroke. In the same



document, the R is a triangle with a long down-stroke, 




In ancient Phœnician, D is represented by 



; in Assyrian , differing from B in having

the down stroke straight. R is formed thus, 






; in Assyrian . In more modern

Phœnician, and in Numidian, D is  and R 

. The Carthaginian D is , and R  or



 and , the sole difference being between the length of



the down-stroke. The ancient Greek D resembled that on




the Moabite Stone, and was written     



the R was      . Here the resemblance



is so striking between the two letters that it is easy for a learner to mistake one for the other. The likeness between


the two is equally shown in modern Hebrew, where  and  are so nearly the same, that I cannot distinguish the one from the other, in small type, without the aid of a lens. In








early Hebrew there was a similar difficulty,   standing











for D, and  for R. In old Italic, D was  




and R . Amongst the Oscans, D was ; amongst






the Volsci, ; amongst the Faliscans, ; and amongst

the Romans, D. The R was amongst the Umbri ; the


Oscans, ; the Etruscans,  . In Upper Italy it was also ; whilst amongst the Falisci it was  ; and amongst the Romans, . It speaks well for the good sense of Roman grammatologists that they adopted a means of preventing farther confusion between D and R, by curtailing the perpendicular stroke of the first, and adding an extra stroke to the latter.


When we endeavour to ascertain the origin of our letter E, it has been thought doubtful whether we can trace it fairly beyond the Greeks. The dubiety, however, disappears when we find that the Hebrew soft aspirate, called He, and now written , was in reality nothing more than the vowel e, pronounced as a Cockney would give it. This view is still farther confirmed, when we look at the *He* letter in the most ancient Palestinian alphabets. On the Moabite Stone, for example, it is given ; in Assyrian  . In ancient Phœnician it is      ; subsequently,


  , the last of which corresponds to the Greek *Heeta* H and the English *Aitch* H. In Carthaginian



inscriptions, the letter is written     . This last instance occurs in an inscription, apparently funeral, in which Abd Asman (a worshipper of Eshmun), and a son of Abd Melkart (a worshipper of Melkart), is noticed as being a scribe. It is not too much to infer, from that fact alone, that a knowledge of the art of writing was not common in his days, and that the profession of a scribe was regarded as an honourable one. Ignorance may then have been as common as it is in modern Spain; but if professional letter writers had been as abundant, and as poor, as they are in

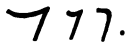


Madrid, a man would not have the profession of scribe paraded on his tomb.

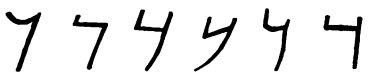

Amongst the ancient Greeks, the *He* of the Phœnicians was . In the ancient Hebrew, it




was . Amongst all the ancient Italian people, it was the same as amongst the Greeks of old. In the Celtiberian,

one form was , but the use of the *E* seems to have prevailed generally. The later Greeks and Romans, who wrote from left to right, adopted the *E* as we know it now. Having thus traced our *E* to the gentle aspirate of the ancient Palestinians, we must allow that certain individuals, who talk of *heach* and *hevery*, have classic authority for the practice.

Our *F* seems to have descended from the Palestinian *V*, or *Vaw*. This, on the Moabite Stone, is written  from the last of which it is probable the Greek  *Phi* was


















derived. In the ancient Phœnician it was . In Assyrian, . In old Hebrew it was . In the Carthaginian,


. In the ancient Greek, the *Vaw* became *F*; commonly called the digamma, and  both of which, in later periods of the language, seem to have


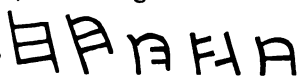

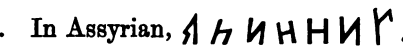


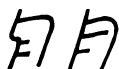

















been lost, or rather, to have been replaced by . This letter, *Vaw*, was rendered among the Etruscans, the Oscans, and the Umbri, by our figure *8*; by the Faliscans as  which is not essentially unlike the  of the Moabite Stone.

Amongst the Volsci and the Romans, it was **I** and **F**. If we now try to find in ancient Italy the counterpart of the Greek **ϕ**, we find it as **8** amongst the Umbri; **Θ Π** amongst the Oscans; **Θ** and **8** amongst the Etruscans; **PH** and **F** amongst the Romans. We conclude, therefore, that the digamma of the Greeks was generally used at the time when they carried their alphabet into Italy, and that the **ϕ** supplanted it at a comparatively late period. How remote the use of the Greek **F** was we infer from what Pliny says, *Nat. Hist.*, B. vii., c. 57, viz., that Palamedes added the **ϕ** to the sixteen lettered alphabet at the time of the Trojan War, but that Aristotle thought that **ϕ** was an original Greek letter, making no mention of the digamma. The date when Aristotle flourished is B. C. 340. The first time that Etruria is noticed as a flourishing state is about B. C. 750, the date usually assigned to the building of Rome. But it is difficult to believe that the Etruscans had not been taught letters long before this date; consequently we have been led to form the belief, that the art of writing reached Italy from Greece, or from the Phœnicians, at a period anterior to, or shortly after, the Trojan War. It is not of much consequence what date we accept. Our sole design is to show that, about three thousand years ago, ships were common in the Mediterranean, and carried with them the literature as well as the products of the mother country. Nor need we wonder at this, for, taking the Biblical chronology, we find (see *Jud. v. 14, 17*) that about B. C. 1300 Zebulun is said to be rich in scribes, and Dan to be occupied with ships. We do not profess to decide whether the Phœnicians or the Greeks took the old Palestinian alphabet to Italy, but that one or the other did so is morally certain. Possibly, both Greek and Italian traders brought it home from great Zidon.

In the early Palestinian alphabets, the letter G came the

third in order, if we are to judge from the Greek and Hebrew representatives of them. On the Moabite Stone this letter is very similar to the Arabic numeral 1; nor is it very different in other old Palestinian or Phœnician inscriptions,  being the signs used. In Assyria, . In the ancient Hebrew,  were equally the signs. In Carthaginian, the letter G resembles P so closely that I have some difficulty in making the distinction manifest. For example, in No. 7, *Phœnician Inscriptions*, last line,  stands for P, and  for G; but in this particular instance, both symbols may represent G; in another inscription  represents this letter; in another, ; in another, . In ancient Greek, these forms were kept up, viz., ; then, when the style of writing changed, to    ; finally settling down into G. Amongst the Etruscans, the Greek  became , amongst the Volsci , amongst the Oscans, ; the Latin G, which is that from which our own has come, is the first time we see a great departure between the Palestinian original and the Roman.

H is a letter of considerable interest; as far as we can judge from modern Hebrew, it was a strongly guttural sound, not very dissimilar to the Welsh owch; but we may call it nevertheless a very intense E, an E pronounced from the throat, as if it were hawked up. That it has some affinity with the soft *He*, I think the context shows; for example, on the Moabite Stone the soft *He* is ; the hard, guttural


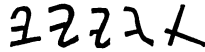
Chē is . To this form it keeps, with insignificant variations. In the old Phœnician it is  . In Assyrian, . In the more recent Phœnician and Numidian, we find  . In some of the former, we can notice, as it were, a recognition of the fact, that two adjacent down-strokes, coupled, first with three, then with two, and then with one cross-bar, sufficed to make the letter. In the Carthaginian, a great variety prevails,  occur on one inscription; others are   and  on the same Tablet;  is the most common;   are varieties;  and  are on one slab, with , the soft E. Amongst the ancient Greeks this letter was ; subsequently subsiding into  *H*, which is pronounced simply as if it were a double E. This  became  amongst the Oscans: and in upper Italy;  and  amongst the Etruscans,  amongst the Umbri, and  amongst the Romans and the Volsci.



It is possible that originally the *H* of Italy had a guttural sound, like the Hebrew, for etymologists may trace the Latin *hic*, *hœc*, *hoc*, from the Sanscrit *gha*; and derive *horror* from the Sanscrit *ghorah*.





We can thus associate the hard guttural *Cheth* of the Palestinians with the long E of the Greeks, and the soft and scarcely whispered gentle aspirate of the Romans and modern

Italians. It is therefore clear that, in borrowing an alphabet from strangers, it by no means follows that the sounds are taken as well as the letters—a subject to which we may probably refer subsequently. The best modern illustration of this which occurs to me are the words “Llangollen” and “fille,” in which the two L’s are respectively T H L, as Thlangothlen, Y Y as in the French Fiy-yeh, and L L as in the English “filly.”

We may extend our observations still farther to the guttural “owgh” or “ough,” which exists in so many parts of comparative savagedom that I do not like to mention one. This, as a recent writer in the *Cornhill Magazine* remarked, has been modified until it has almost been suppressed, as has the Hebrew *Cheth* into the Roman H, mute. For example, “hough” is pronounced “hoch,” the old Palestinian guttural; “trough” is “troff,” “rough” is “ruff,” “plough” is “plow,” “dough” is “doh,” “ought” is “aut,” and “borough” is “boruh.” But into the running of one sound into another it is not my province here to enter, except episodically.

The next two letters are practically the same, I and J being convertible. On the Moabite Stone, this letter is represented by  which seems to be very remote from the Greek and Roman single down-stroke. In Assyrian, 

. Amongst the old Phoenicians, the letter was much more strange, 

. Subsequently these became . Amongst the ancient Hebrews, it resembled the character on the Moabite Stone, viz.,  . The

Carthaginians adopted 

𐤀/𐤁𐤂, so that we may say that, upon the whole, the Carthaginians were as particular in dotting their i, as is a modern writing master, only that the ancients placed their dot below the letter, instead of above it, as we do. In early

Greek, the characters were >2. In the Etruscan, the sign was 𐌁 or 𐌂. The same may be said of later Greek and Roman. The transition from any of the ancient forms to the modern one cannot be traced through any intermediate links, and we can only surmise that the central dot or dash was regarded as sufficient to mark the letter.

The letter K is comparatively easily traced. On the Moabite Stone, where the inscription is read from right to

left, the sign is 𐤀 and 𐤁. In Assyrian, 𐤀𐤁𐤂. In

the old Phœnician, it is 𐤀𐤁𐤂𐤃𐤄𐤅𐤆𐤇𐤈

and in the later, 𐤀𐤁𐤂. In the Carthaginian we find

𐤀𐤁, which is so closely like n that it is difficult to dis-

tinguish the two apart, *e. g.*, on one inscription the two come

together thus, 𐤀𐤁, k n; again, we find 𐤀𐤁𐤂

𐤃; the most general form being 𐤄. In ancient Greece,

this became 𐤀𐤁𐤂. The majority of the ancient Italians wrote it similarly to the Greeks. But the Etruscans, Falis-

cans, and Volsci sometimes used the signs > instead.

The Romans, who wrote from left to right, adopted both K and C.

I must notice for a moment here, that in modern pronun-

ciation there is little difference between K, Q, and final C. There is, as I have already remarked, a probability that K and C were convertible, but both differed from Q, which had originally, and has yet among the Arabs, a guttural sound, which it is difficult for us to imitate.

The letter L has undergone very few changes, probably from its simplicity. On the Moabite Stone it is found thus,

𐤋. In the ancient Phœnician, it figures as 𐤋 𐤌 𐤎 𐤏 𐤐

𐤑. In Assyrian, 𐤋 𐤌 ; in later Phœnician and Numidian,

𐤋 𐤌 𐤎 𐤏 𐤐 ; in ancient Hebrew, ל ; in ancient

Greek, λ ͵λ ͵λ ͵λ ͵λ . In the Carthaginian, it is 𐤋 𐤌

the sole difference between it and an N 𐤎 being the relative

length of the upper to the lower limb. In ancient Italy, it

was 𐤋 𐤌 𐤎 𐤏 𐤐 𐤑 𐤒 , and in Roman, 𐤋 𐤌 𐤎

finally it became 𐤋 amongst the Greeks, and 𐤌 amongst the Romans ; but the latter still retain the 𐤌 in their small letter, and the Greeks the λ in their corresponding one.

We may trace M as easily as L. In the Moabite Stone,

it is 𐤍 . In Assyrian, 𐤍 𐤎 . In ancient Phœnician,

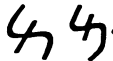


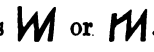




it is found as 𐤍 𐤎 𐤏 𐤐 𐤑 𐤒 𐤓 𐤔


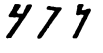
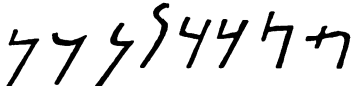
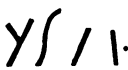

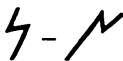
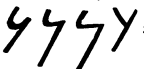
Subsequently 𐤕 𐤖 𐤗 𐤘 𐤙 . In ancient He-




brew it was מ . In the Carthaginian, 𐤍 𐤎 𐤏 𐤐


differing only from S 𐤑 𐤒 by the length of the down


























and up strokes. Indeed, so closely alike in some inscriptions are the two, that the sense alone enables us to determine

























which is which . In ancient Greek, the letter became . In ancient upper Italy, it was the same as in Moab ; one similar form was found in Etruria. Amongst the Falisci, Umbri, and generally in Etruria, it was  or . Amongst the Oscans, it was ; amongst the Volsci, , the form adopted ultimately by the Greeks and Romans, but the former still retain the old form of  in their small μ , m . The same form existed amongst the Celtiberians.

N has a history as simple as that of M. On the Moabite Stone, it is . In Assyria, . Amongst the older Phœnicians, it was ; in later times . Amongst the ancient Hebrews, it was ; in old Greece, it was . Amongst the Carthaginians, it was , differing only from the L in the length of the down stroke. Amongst the Etruscans, we find

it . In Upper Italy, it was . Elsewhere in Italy it was , the symbol adopted by the more modern Greeks and Romans, who wrote from left to right.



The letter O, there is little doubt, is a legitimate descendant of that called by the Hebrews *ayin*, and pronounced by some as A, by others as G—Gaza being also pronounced Aza. On the Moabite Stone, this letter really appears as a circle. It did the same amongst the old Phœnicians. Sometimes the circle was not closed, ; sometimes it was

elongated, ; sometimes . In Assyrian,   . In more recent times this became . In ancient Greece, the same sign was found marked with a central dot; occasionally it figured as a diamond,  . Amongst the Carthaginians, we find it generally , very rarely completely closed at the top; sometimes  . Amongst the ancient Hebrews, it was  . It was       amongst the Umbri, Oscans, and Etrurians.  amongst the Volsci.  amongst the upper Italians.   amongst the Faliscans and Romans. The latter Greeks adopted both forms, and called one of these , little *O*, or *Omicron*; the other was changed to , and called great *O* or *Omega*.


In tracing P, we shall find that it has been but partially changed during nearly three thousand years. In Moab, it was , which being turned, so as to adapt it to the modern plan of writing, becomes , that is readily developed into . Amongst the ancient Phœnicians, it was   ; later on, simply . In Assyrian,   . Amongst the older Hebrews it was like . Amongst the Carthaginians it was   . Amongst the Umbri, Etrurians, and Upper Italians, it was    . Amongst the Oscans and Faliscans   ; amongst the Volsci, ; amongst the Romans,  . In Greek it became *Π*, and we may infer that the change was



effected in that part of Italy called Magna Græcia, where the Hellenic people came into contact with the Oscans.




As far back as the time of the Moabites, there appears to have been a letter formed somewhat like the letter Q. Although in our own language it is difficult to draw a valid distinction between *q* and *k* and final *c*. *laq.* as in *laquer*, *cak* as in *cake*, and *lac* as in *shell-lac*; there seems to have been a difference between the *k* and *q* in the Palestinian. I am told that there is such in the Arabic, the latter being deeply guttural. The probability of this we judge of by the fact that the Hebrew name for the letter is *Q'oph* or *Koph*, which involves a sort of "hawing" sound. On the Moabite Stone,



this letter is written in two distinct fashions  or . In



Assyrian,      . Amongst the ancient Phœ-



nicians, the most common form was , but they also had

 and ; more recently  . Amongst the

ancient Hebrews, the letter was  , which is not very dissimilar to the modern . Amongst the Carthaginians the

form was , the down stroke being very long . In


archaic Greek, the letter appears as  , which disappears entirely in the more modern form of the language. In the




Celtiberian, it was , and in old Roman . In Ancient Italy, I do not find any trace of this letter except in the Roman Q. Where this people used Qu, the older inhabitants used Ku.
















Of the letter R we have already spoken.

In the oldest known Semitic alphabet, two S are to be found, each one having a particular sign. What the original



pronunciation of these was we have no distinct means of knowing. One may have been equivalent to our *x*, and the other to our *s* in *so*; or one equivalent to the sibilant *s*, and the other the *sh*, as in *bush*. On the Moabite Stone, one







(*Samech*) is written , which closely resembles the modern

Greek Ξ Xi, also  . The other *s* (*shin*) was 

         ; subsequently     . In Assyrian, the *Samech*



was   , and the *Shin*     . The *Samech*

was wanting in archaic Hebrew, and the *Shin* was  .

In the Carthaginian, the *Samech* was    , the last being the most common form. The *Shin* was  

. In old Greek, the *Samech* was \dagger \mid , according to

Ballhorn, Σ ρ ρ ; ρ ρ according to Gesenius (*Monumenta*


Phœnicia); the *Shin* was  , showing, as I think, that the archaic Greeks had only one sibilant consonant,







which ultimately became Σ , the Ξ being equivalent to our *X*; and I may say, in passing, that I have been told by an Arabic scholar, that what the Greeks call *Xerxes*, the Arabs would render *Shershes*. Amongst the Umbri, *Samech*

was d s ρ , and amongst the Celtiberians ρ Ξ

Amongst the Oscans, Volsci, and Falisci, it was ρ ρ

Amongst the Etruscans, ρ ρ M ; and I may notice here the probable influence of the Phœnicians, or more probably of the Carthaginians, with whom, as we have already remarked, the *M* and *S* are remarkably alike. In Upper Italy it was

𐤆 𐤇 M 𐤈𐤉. In the Roman the letter became S, which seems to be fairly deducible from the  of the Moabite Stone, the letter being placed upright and the down-stroke dropped.

Gesenius traces the  of Italy to the , *Shin*, of ancient Greece, which became  amongst the Samnites, and    amongst the Celtiberians. In any way, we must conclude that the ancient Italians and Romans had, like the Greeks, only one sibilant, and used the sign of the *Samech* and *Shin* indifferently.

Our T can readily be traced from the earliest period. But before we go through its pedigree, we must notice that in the original Semitic alphabet there were two T, as well as two H, two S, and two Z. To one of these the Hebrews give the name of *Teth*, and to the other *Taw*. Of the original pronunciation we cannot be quite sure. Judging from the modern Hebrew, we should consider the *Tau* had the sound of *th* as in *thaw*; but judging from the position of Θ in the Greek alphabet, in which it comes next to H, *Heeta*, just as the *Teth* comes after the guttural 𐤍, *Cheth*, in the Semitic, it would appear that *Teth* was originally the sign of *Th*.

The *Teth* I cannot find in the Moabite: it was written

 in the old Phœnician, also 

subsequently . In the Ancient Hebrew the letter has not been recognised. In the Carthaginian

it was . In Archaic Greek, this became 

⊗ ⊕ ⊙. In Ancient Italy, this became ⊗ ⊙ ⊙
 ◇ ⊙; and, as if to identify it with the Modern Greek Θ

or Θ, we find the letter replaced in the Etruscan by ET

or *th*. In Celtiberian it was ◇ Θ Θ. In Roman TH. The other form of T, viz. *Tau*, is rendered by the later Greeks

Θ. On the Moabite Stone, this letter is written X
 In the older Phœnician, it was 𐤔 𐤕 𐤖 𐤗 𐤘

𐤙, subsequently XXTTT. In Assyrian 𐤔 𐤕

𐤖. In Archaic Hebrew, it was X +. In the Car-

thaginian 𐤔 𐤕 𐤖 𐤗 𐤘 𐤙, the last being most

common. In Ancient Greek it was 𐀓 T. In Upper

Italy it was originally X +. In the Umbrian, Faliscan and

Etruscan TTU. Amongst the Samnites, the Volsci and

Osci T. Amongst the Celtiberians, TT+. Amongst the later Greeks, who still call it *Tau*, T is similar to that which existed amongst the Romans and ourselves.

The next two letters in our alphabet are practically the same, and I am not sure whether we ought not to include W with V and U.

In the Moabite Inscription V is written 𐤕 in which we see the origin of U and 𐤕 where we may fancy we

recognise our U. In Assyrian 𐤕. In Phœnician this was

𐤕 𐤖 𐤗 𐤘. In Old Hebrew 𐤕 𐤖. In Carthaginian 𐤕

𐤕 𐤖 𐤗 𐤘, which is so similar to K 𐤕, that I cannot

distinguish the two, except from the sense; for example, on one inscription, **4** is V and **4** is K.

Indeed, as I prosecute my enquiries, I doubt whether every individual inscription which has come down to our times has not been originally written by a scribe, and then given to a graver to copy. In no other way can I explain the variety of signs which we find for one letter on the same stone; for example, in one, *ex voto* (No. 56 *Ph. Ins.*) there are **7** **7** for the same letter. Now in my own manuscript

5 **7** **7** **7** **7** and **7** all stand for T. I cannot myself


tell the difference between my way of writing *x*, *u*, and *n*, except by the context, and if any one were to copy a manuscript of mine in stone cutting, we should find as curious varieties in the signs of each letter as in ancient inscriptions.


In Plate 32 of *Phœnician Inscriptions*, which seems to be a standard one, from the beauty of its execution, in line five, V and K are close together, and the only difference I can discover is that in the K **4**, the downstroke is slightly inclined, whilst the V **4** is either straight, or directed very slightly in a contrary direction. As this difference is to be traced throughout the fragment, I presume that the distinction between the K and the V was in the downstroke alone, and the way in which it was inclined. In the same way the B and D were distinguished.








In the Ancient Greek, this *Vav* or *Vau* became the digamma **7** F. See F *supra*. In the more modern Greek, and in the Archaic Italian, the **4** became V Y, finally settling down as Y *u* amongst the Grecians, and V amongst the Romans.

Our W comes to us from the Germans, and beyond that I am not aware of its having any history.















The letter X has come to us from the comparatively modern Greeks and Romans, and it is chiefly used in those words derived from the language of the Hellenes. We have already expressed our surmise that the X is a Grecian form of the Semitic *Samech*, or *s*.





Y is a letter which has descended to us through a curious mistake. There was no such letter known to the Greeks, but they had an U which was written . This was transferred bodily to the Romans, when they copied Greek names into their own language. Thus Cicero says (I am quoting from Smith's *Latin Dictionary*), Ennius always wrote Burrhus for Pyrrhus, and Bruges for Phryges. This introduction of *y* for *u* seems to have taken place shortly before Cicero's time.

In tracing the history of our Z, we must notice that in the original Semitic alphabet there were two letters of a similar import, one called *Zain* and the other *Tsadhe*. The one appears to have been equivalent to our, and the other to the Italian .

In the Moabite Alphabet the two were written  and , and we can see in the former almost the precise form of our own Z. In the Assyrian they were    , and .

In the Ancient Phœnician they were  and  respectively.

In the Carthaginian, they were         and      .

In Ancient Greek, one letter, the *Zain*, became   , and the *Tsadhe* was dropped altogether. In the Ancient Hebrew, the *Zain* was dropped, and the *Tsadhe* became . In Italy, amongst the

Umbri, Etrurians and Faliscans, the *Zain* became 𐀵 𐀶 𐀷

Amongst the Oscans, it was **I**, whilst the Romans adopted the Greek form, which is the most ancient, viz. **Z**.

It now only remains for me to show that the language of those who taught the alphabet to Greece and Italy was not imported with the letters, and to inquire in what way the knowledge of the Phœnician Grammatography was most probably spread. In the first place, I may notice that the Palestinian and Carthaginian tongues are so closely allied, that we may take a sentence in Hebrew as typical of the Moabite, the Tyrian, and the Carthaginian. *Brashith barak elohim eth hashamaim ve-eth haaretz*. This in Greek is *Hen archee hepoieesen ho theos ton houranon kai teen gee*. In the Latin, *In principio creavit Deus cœlum et terram*. As I cannot give the same verse in the various tongues of Ancient Italy, I will take an Umbrian sentence at random from Newman's text of the Iguvine inscriptions: "*Inoc westicia mefa purdowije scalçeta conicax. Appetre esof destro sese asa asama purdowitu sewacne succatu*," p. 6. Another from Italian Switzerland (Fabretti's *Inscriptions* 2), "*slasai lerkalai pala tisiu iinoioiui pulu, or pele*. Another from Novara (*F. I.* 41 bis), is "*Ianotaliknoi-knitos lekatos anokopokios esanekoti anareviseos tanotalos karnitus tekostout*." Here is a fragment of Etruscan (*F. I.* 1914): "*eulat tanna laregul velthinas amevachrlautor velthinas e atanazue stlaafunassleth caru i. enesci. ip tezanfusteri*." A still better illustration of the essential difference between the Etruscan and the Greek may be seen in some very remarkable paintings found in a large Etruscan tomb. The scene depicted is taken from the *Iliad*, and the names of the men and women are given in Etruscan characters under each. Thus Cassandra and Ajax become Casntra Aivas; Agammemnon = Achmemrun; hintial patru-cles = phantasma Patroclees; Achilles = Achle; Trojanus = Truials; Charon = Charu (*F. I.* 2161,2). Another inscrip-

tion in Volscian begins thus (*F. I.* 2741): "*aisos pacris totai maroucai lixs asignas ferentur aviatas toutai*" (see also *F. I.* 2783). Here again is another inscription from Southern Italy, found at Pompeii, to which town, had either Greeks or Phœnicians brought their language, it ought to be found. "*V. Aadirans v. eitiuvam paam vereiiai pumpainai tristaa-meutud deded eisak eitiuvad,*" &c., the last word signifying pecunia, or money.

This is a Samnite inscription (*F. I.* 2848): "*reikps vurpus pim irim esmen ursui ems upekei; vikesie peien esmenek asin raevim,*" &c.

If we now attempt to inquire into the most probable method by which grammatography has been spread abroad, our attention is called to two principal methods, each of which demands a passing notice. One is trade, traffic, or commerce; the other is religion, or priestcraft. Let us inquire, in the first place, whether Great Britain, by her merchantmen alone, has ever taught our alphabet, and the power of reading and writing, to savages, or even to civilised nations. We answer without hesitation in the negative. Our shipmen are, as a rule, so taken up with their varied duties and pleasures, that they have neither time nor inclination to be schoolmasters. In the ruder periods of England, her seafaring men were especially illiterate, and quite unable to teach people, speaking a different language to their own, to put that tongue into Roman type. Granting, however, that ancient mariners were good scholars, we fail to see how they could find leisure, when voyaging from place to place, to remain long enough to persuade persons to come and learn, and then to teach them. I will not generalise so far as to say '*ex uno disce omnes,*' but merely record the fact that I knew a young American, who had been living almost like a chief for five years in a valley of the Marquesas—having been cast ashore in a shipwreck—yet he never thought of teaching the tribe to read or write, nor did they evince any

desire to learn. Why should they, when each one could speak to every neighbour.

We must now advert to another fact, viz., that from time immemorial there is evidence that reading and writing were rare accomplishments amongst those who are called Shemitic people. There is testimony sufficiently strong to lead us to believe that grammatography was an art almost exclusively possessed by the priestly orders, or, perhaps, to speak more correctly, that the profession of scribe was one allied with both the kingly and the hierarchical class, but inferior and subject to both. The scribe in old times occupied the status that an interpreter and a guide do at the present moment. They were necessary under certain circumstances, and, if ambitious, might make themselves powerful by their influence.

We are now in a position to inquire whether individuals in days gone by ever travelled upon a religious mission, and, if so, whether their capacities were such as to lead to the belief that they could learn a new art abroad, and teach it to their brothers on their return home. In the first place, we find, in the description of the Argonautic Expedition, that a certain Idmon, a seer, prophet, astrologer, or augur, accompanied it (Smith's *Dictionary of Biography and Mythology*, vol. 1, pp. 281-6). Now we do not pin our faith on the truth of the story of Jason and the golden fleece; but we point to the fact that a religious man is on board, in a pious capacity, as evidence that some hierarch or other was sometimes engaged by adventurous seamen to cruise with them. We must also advert to the story of Oannes, who seems to have been a shipman, that taught the Assyrians certain arts—probably religion too. But all history is so silent upon the subject of missionaries, in the modern acceptation of the word, that we cannot attribute the spread of literary knowledge to religious corporations, or to individuals. In favour of this conclusion, we may notice that, although the Etruscans had

borrowed letters either from the Phœnicians or the Greeks, they certainly did not borrow their Gods from them.

But there is another hypothesis to account for the spread of grammatography, which is, we think, tenable. Assuming that, in days gone by, the priesthood like the Romanists of to-day were desirous of being the guides of the people, and of wielding temporal by the use of spiritual power, we can readily imagine that pilgrimages or journeys would be made to distant lands, in order to return, if possible, with greater knowledge, and therefore with greater influence. As examples of this propensity to travel,—which was certainly not limited to the hierarchy,—we may mention the apocryphal story of Abaris, a Hyperborean, who came to range through Greece, and who learned philosophy from Pythagoras (see Smith's *Dictionary*, *s.v.*, and Rawlinson's *Herodotus*, vol. 3, p. 25, note 5). Also the more probable one of Anacharsis, a Scythian, who entered Greece to study, and, after acquiring as much knowledge as he could, returned to his home. His own history tells us how extensively Herodotus travelled; and tradition reports that Pythagoras reached as far as India, returning thence with great store of learning.

We must now call attention to the assertion of Cæsar, that the Druids of Gaul came to study their religion in Britain; and to another of more modern writers, who tell us that many Christians of Scotland and England went to study in Iona and Ireland. In more recent times, we have seen young men sent from all parts of the world to study in Rome, and Japanese coming many thousands of miles to examine into the condition of Europe. Even in days scarcely yet gone by, we have seen accounts of shrewd men of business wholly unable to read or write, but who have not only made their sons learn to do so, but have sent them abroad to pick up what information they could obtain.

We conceive, then, that in Celtiberia, Italy, and Greece, grammatography was introduced by individuals who visited

older and more civilised nations than themselves, and learned there the art of writing. On their return home, they each became a "scribe," one of a body of men whose functions in every state was more or less important. It was they who penned treaties, inscriptions for tombs, or for trophies, and who conducted foreign correspondence. Each individual scrawled—much as we do now—in a fashion of his own; and I doubt not that, if their scribbles had survived to us, we could as readily recognise the author of any inscription, as we can distinguish between the caligraphy of one friend and another.

We think that this hypothesis helps us to account for the fact, that neither language nor religion followed or accompanied the alphabet in ancient times. In this more modern age, the alphabet and catechism travel together; but, though we offer our religion to the Maori, the Red Indian, the Malay, and the Australian, they yet prefer their own.

As the study of the alphabet now in use amongst us carries us back into the ages of remote antiquity, so it carries the mind forward into a dim futurity. The art of reading and writing has survived the power of Tyre and Carthage. The Etruscans, who adopted it, have wholly disappeared. Rome, whose people carried their arms almost all over the then known world, has passed away as the arbiter of nations. Greece, after shining like a brilliant meteor, has become a ruin, and the resort of robbers. Can England hope for a better fate? We fain would believe that she will never fall so low as Hellas and Italy have done. But if she does, there will be many of her descendants left behind, who can point to her as a mother of arts and a spreader of learning. Nations, like men, may die; it should then be the aim of all to leave something behind them to prove that they have not lived in vain.

PERSONAL REMINISCENCES OF THE PENINSULA OF KATTIAWAR.

By W. K. KENT.

THE introduction of this paper referred to the general history of the country under Mussulman rule, the antiquities to be found in it, and the most prominent physical features of the landscape. Mr. Kent then gave the following description of his journey from Bombay to Kattiawar:—

The traveller reaches Kattiawar, by the Bombay and Baroda Railway, on which he journeys its whole length to Ahmedabad. The railway runs due north from Bombay through the towns of Surat, Broach, and Baroda. Even those unacquainted with the science of engineering cannot but admire and wonder at the work accomplished. The track is pretty level all the way, oftentimes in sight of the sea on one side, and the ghauts on the other; but the bridges are the objects of the engineer's admiration. You will notice that, directly after leaving Bombay, a bridge of enormous length has to be crossed. I should be afraid to estimate it, but would guess roughly at little short of two miles; while the rivers Taptee, Nerbudda, and Mhye, required similar proofs of the engineer's skill. In the dry weather these rivers run in a comparatively very narrow channel, but after the rains their swollen torrent rushes along furiously, occupying the whole width of the bed. The engineer's skill is sadly tried by this, and on my return down country to Bombay I found two or three of the noble spans of the structure over the Nerbudda at Broach entirely washed away, necessitating our crossing in boats to that part of the structure that remained firm. The bridges, I should mention, consist of girders resting on screw piles.

The journey from Bombay to Ahmedabad, a distance of about three hundred and twenty miles, occupies about fourteen hours. Here I stopped in the little hotel connected with the railway station outside the town for a couple of days, which allowed me time to see something of the town, and to make preparations for my further journey. I started

in the early morning on foot, umbrella in hand, and the first thing that struck me was the wall. The city, containing over a hundred thousand inhabitants, is six miles in circumference, and entirely surrounded by a wall, which I should estimate at forty feet in height, and perhaps fifteen in thickness, with towers and gates at intervals. I did not notice embrasures for cannon, but it was loopholed for musketry. The masonry seemed of a very substantial description. Passing through the gate, I found myself in a narrow busy street, filled with vehicles of every description drawn by bullocks, here and there a camel towering above every other living thing, while here and there also a bluecoated policeman, with yellow turban, truncheon in hand, shewed conclusively I was still under the protection of the British Government. I was for a short time astonished at what seemed the disparity in number of the two sexes that made their appearance. I knew I was amongst Mohammedans. Had their women shut themselves up in the seclusion of the seraglio, or what was it? All the people wear trousers. Yes, in this part of the country women habit themselves like men, whereas in Ceylon, I had seen men dressing as women. The dress was very simple; a pair of trowsers tight round the calves down to the ankles, loose above and drawn in by a string round the waist, over this, a short coat with tight long sleeves, and headgear not unlike the sun-bonnets worn at our seaside watering places, complete the costume; but there is no concealment of the features as in some Mohammedan countries. Altogether I thought the dress a very sensible one. After having resolved this difficulty, I pursued my way in quest of a Parsee shopkeeper, who was to provide for my journey. The narrow street suddenly terminated in a grand Plaza, as wide as that of any of our English towns. In the centre is a huge cistern, supplied by pumping machinery from the river Sabermuttee, which flows near the town. A number of brass taps round the cistern enable the inhabitants to draw whenever they want. Further on this Plaza is crossed by a bargate, not dissimilar to Temple Bar, or that at Southampton. The street terminates in front of an enormous gaol, which is painted sky-blue, and put me very much in mind of those wherein princesses are confined by their cruel tyrants, every Christmas, at the theatres at home. I soon found my Parsee friend, who was one of the fattest men I ever saw in my life. I must leave it to physiologists to determine why it is that a hot climate produces such totally different effects on different individuals. Certain it is that amongst the Parsees an unusual number of fat men are to be found. I could name several of my English friends in the East, whom a hot

climate seems to expand laterally, and that in proportion to the height of the thermometer. For myself, I may say, that neither 112 in-doors, nor dysentery, nor fever, after once I had become acclimatised, seemed to check a tendency to lateral growth.

Preparations for continuing the journey were then made, foremost among which was the hire of a vehicle drawn by a couple of bullocks, called a Shigram.

The Shigram is a covered vehicle, on springs and two wheels, windows with shutters at the side, and door at the back. The luggage is placed at the bottom; over this boards are laid; over all a mattress; then, with pillow at the front and blanket, one creeps in and lies down, and can travel night and day as comfortably as in the most refined conveyances of civilisation. This was not a new mode of transit to me, for I had travelled through the table land of Mysore in a similar conveyance, and at that elevation (three thousand feet), with a delightful breeze blowing through, the days passed by in a sort of dreamy enjoyment, while I slept through the nights as soundly as if I had been in the most luxurious bed. The case, however, here was different, as instead of a high table land, my way lay through a country but few feet above the level of the sea; an arid country, with a temperature of the highest, and without the alleviation of the pleasant breezes of Mysore.

Among the most conspicuous objects which catch the eye of the wayfarer, are the groups of men and women assembled round the wells. The women are engaged in various occupations.

One is performing her toilet; almost entirely stripped, seated on a stone with her chatties of brass and earthenware about her, she is laving herself; another is washing her child, and gives him a plentiful allowance of soap; while the men are engaged in watering their cattle. The picturesque costumes of blue, green, yellow, and red, varied with the difference of complexions, from the light olive of the fair sex to the almost jet black of some of the men, and the shining of the brass, lend a richness to the scene which the powers of language fail properly to describe.

Bands of armed men are occasionally met with, mounted on camel, or horse, and these Mr. Kent at first took to be robbers, his Parsee companion having tried to frighten him with stories of pirates in the desert. But the armed men always passed on without molesting him, and he afterwards found that they were either police or officers of the excise! The country he had now reached was

. an arid burnt-up country, relieved only by tall trees at distant intervals. Glad was I to find one by the roadside, which allowed me to get out of my vehicle and partake of a mid-day breakfast under its shade. Cold fowl and bread and butter, washed down by bottled beer, soon assuaged the pangs of hunger. I saw but few houses, and nothing like water till I descried, at the distance of about a mile, a large lake, with trees on its border, skirted by white houses. There were boats sailing placidly over the smooth still surface, and the reflexions of the various objects in the water rendered the picture very pleasing. All of a sudden the vision vanished, boats, houses, and water, all were gone, all save the trees. Where the water had been, nothing was to be seen but the arid plain. For the first time in my life I had seen the Mirage, a phenomenon with which I was destined to become very familiar.

Shortly after noon we reached the bank of the river Subermuttee, which, at that season of the year, might be an eighth of a mile wide; this we crossed in safety, the water not reaching higher than the axle of my vehicle. I noticed several large cranes in the water, of which more later on. By half-past four we had reached Dholka, having done the distance, six miles from Ahmedabad, in nine and a half hours; not bad travelling for one pair of bullocks. I pulled up at the door of the collector's bungalow, and by the crowd round it soon found that one of the chief English officials of the district, the land commissioner, was at that time occupying it. However, I sent in my card, and soon received an invitation to dine and spend the night, which I willingly accepted. Without the universal hospitality which respectable Europeans show to each other, life in the East would soon become intolerable. I found my host an agreeable, intelligent man, who had resided a long time in the East. We sat up chatting unreservedly till about ten o'clock, and then retired. It was eight the next morning before we started again.

I found Dholka to be a place of considerable size, picturesquely surrounded by trees. The bungalow at which I had been stopping was a substantial structure, with rooms upstairs, and situated in a large enclosure or compound. I devoutly wished that next night I might be as comfortably situated. My journey for some time lay through a well-shaded lane, and here I descried some huge monkeys, pursued by a wild-looking, almost naked, man, who was shooting at them with a bow. I asked the cause, and the reply was, that they had been stealing his fruit from his garden. That evening brought me to a village (name unknown), where we pulled within the enclosure of the police barracks, consisting of a row of about a dozen straw huts, surrounded with a railing. Here we stayed for the night.

Next day the village of Dhundooka was reached. This place is

. the centre of the cotton-growing district, for which Dhollera, which is fifteen miles distant, is the market. My residence lay about half a mile from the town, which is an indescribably filthy, badly built place. There are no buildings of any note in it. It possesses three or four large tanks and several wells, from only one of which, however, can sweet water be procured, while another, not twenty yards distant, supplies nothing but the most brackish. The sweet water, however, never failed, and was as pure and good as any to be got anywhere.

The agricultural implements used in this district are of the rudest description :—

The plough consists of a crooked pole, shod with a spike of iron, to which a pair of bullocks are attached, and the ground is scratched up. Nevertheless, the purpose is answered, and it is wonderful that with such wretched implements such splendid crops can be procured. Dall and Juwari, cereals, form the staple food of the population; but these require that the land should be irrigated, which is effected by rude but effective machinery. The horizon is bounded by clumps of tall trees, and wherever these clumps of trees are to be seen, you may be sure there is a small hamlet or ghaum, and that there is also cultivation and irrigation.

The *domestic animals* are the camel, horse, donkey, ox, buffalo, goats, and a few sheep, besides poultry. The camels are very nume-

rous, but vary much in their capabilities as regards speed, and as beasts of burden. A good one will do sixty or seventy miles at a stretch in about fifteen hours. I do not, however, advise my hearers to try camel riding as a pastime. I shall never forget a journey I made by night on one. The saddles are made for two, the driver in front of the hump, and the passenger behind: but I found when I dismounted that the swinging stride of the animal had worked, by means of the pommel of the saddle, a hole into the small of my back. Notwithstanding the frightful cramp it gave me from the unusual stretch of the legs, I nearly fell asleep several times. Nearly falling off, however, I awoke to stop the driver, and allow me to dismount to stretch my legs.

The *Horses* of Kattiawar were formerly noted for their speed and beauty; and though the breed is said to have much deteriorated, yet I have seen some fine animals, which could have been purchased for about twenty-five pounds.

Herds of *Donkeys* are numerous, and are used as beasts of burden, but they are insignificant brutes compared with the donkeys of Egypt.

The most useful brute, however, throughout India is, without exception, the *Bullock*. Many of them are fine large creatures, and capable of prolonged exertion, costing but little at same time for feed. They are mostly of a milk-white colour, though some are dark grey, and others red. They are distinguished, like all Indian cattle, by the long dewlap and hump, which seems to have destined them for the yoke. The cows give but very little milk. The usual pace of the bullock is about two to three miles an hour on a fair road.

The *Buffalo* is a useful brute, whose peculiar formation enables him to traverse morasses when all other animals would fail, though his pace is but slow. They delight to wallow in filth, and often devour the same, which (if it were not for the example of the duck) you might fancy would render him unpalatable.

Of *wild animals*, the jackal and hyæna are also universal throughout India; but the speciality of Northern India and Kattiawar is the *Black Buck* and the *Nyl Ghau* or blue bull. The former is a species of antelope, and roams unharmed, except by the white man, in herds of thirty or forty. A beautiful creature it is; and I may add that a joint from one forms an excellent change from the never-ending goat or fowl. The natives never touch them, and I have seen a herd graze quietly in the near proximity of the ploughman. But the appearance of the topee and pugree of the white man is the signal for a general stampede. Even then, after a few enormous bounds, the stupid

creatures would look round and gaze within short rifle distance. The males are of a dark colour, and hence their name. The nyl ghau, though meaning *blue bull*, I have never seen ; but, as you are doubtless aware, the animal does not belong to the ox tribe, being a sort of antelope. At certain seasons of the year vast herds come down into the low lands to feed, and then form capital sport to the enterprising shikaree. The *panther*, I was told, sometimes made his appearance ; while the *lion* is said to find his habitat in the dense jungles of the mountainous parts of the peninsula. I take this animal to be identical with the maneless Babylonian lion of the naturalists. The *hare* completes my list of the fauna mammals of the district.

It is, however, to the feathered tribes that I would more particularly direct your attention. First and foremost comes the *Sarus Cranes*. These beautiful birds, standing four to five feet high, with their silver-grey plumage and crimson heads, are to be found in vast flocks in Kattiawar. At the time of the year I am speaking of, not a morning passed but a number of flocks, numbering from fifty to two hundred, flew, at a comparatively short distance from the ground, over my bungalow in an easterly direction, evidently in search of new feeding grounds. On one occasion I woke and saw the large field at the back of my bungalow covered with them. As they fly, with their long necks and legs stretched out, they utter a peculiar plaintive call or cry. I have been told that they are easily tamed, and that, if one be captured and tamed, he will soon leave and bring back with him a mate. There are some fair specimens in the Zoological Gardens in London.

I must speak next of the *Koncroni*. This is the native name for another bird of the crane species. He is not so big as the sarus, and is quite black, with a blue head. He, like the sarus, has a peculiar cry ; but I have never seen him in large flocks, but in number not exceeding three or four together.

The large and small *Bugla*, or bittern, are common birds. The latter only answers to the bittern of this country, and is of a greyish white colour ; the natives are utterly unscientific, and hence the confusion of appellation. The former bird seemed to me to be a sort of flamingo : a graceful creature, with white body and sky-blue wings, standing about four feet high.

The *Spoonbill*, with its (in the males) peculiarly shaped bill, I have shot several times, and even made a meal off, though it is rather fishy in flavour.

Kattiawar, and indeed all India, is a land of *Peacocks*. These birds are regularly fed by the inhabitants of the ghauts, or villages, though they are nobody's property. The same may be said of the *Pigeons*, which are to be found in thousands.

I sometimes fell in with a species of *Partridge*, not bad eating; but the *Kermoul*, a handsome bird, with a crest of three small feathers on its head, pleased me best. The *Juwari* bird, which came in great numbers when the cereal from which it takes its name was growing, a small brown bird with the flavour of a walnut, formed an agreeable side dish. Of other birds, suffice it to tell of the carrion Vultures, Kites, Parrots and Crows, the latter to be found in great numbers throughout the country, wherever human habitations are to be met with, and whose unparalleled audacity afforded me at times great amusement, and at others annoyance.

There is a bird which I must not omit to notice, as being the annoying foe of all sportsmen. The *Titori* is a light brown bird, white underneath, with a crimson head, and long legs not unlike the Peewit, and whenever a sportsman appears, the annoying creature rises in the air out of gun shot, uttering its shrill cries of warning to all other creatures that may profit by them, which the sportsmen may be in search of.

Of *Reptiles*, there were an abundance of snakes, lizards and frogs. I was out one morning with my gun (a single barreled fowling piece) and my servant, looking for rabbits on the banks of a dry river, when, turning my head, I perceived a huge snake coming furiously along the bed to the spot where I was standing. On my directing my servant's attention to it, he exclaimed "Master, shoot, that very bad snake, master, shoot." I must confess to having been taken all aback, and my limbs almost refused to perform their office, however, with trembling hands I managed to pull the gun to my shoulder and fired. I had evidently hit the brute, for there he was writhing in the sand. "Master, fill again, master, fill again," shouted my servant in an agony of fear. With difficulty I managed to ram the charge home, but I took a good aim, and sent it into the reptile's head, and put an end to his career. He measured about eight feet in length, and was called by the natives a *Damon*, said to be very venomous. Of smaller snakes I saw plenty, but none of importance. The *Chameleon* and other lizards were common enough, but there was one animal of this tribe that brought me another adventure. One morning early, I was walking in the verandah which surrounded my bungalow, when I perceived what appeared

to me a huge rat come out of a hole in the wall. He was apparently on the look out for something, as he planted himself in the ground, and peered cautiously around. I called my servant, and on pointing it out he exclaimed;—"Master, that very bad beast; that beast bite master, master die." At a respectful distance, I examined the animal more attentively, and soon discovered that it was an enormous lizard, measuring, as near as I could calculate, twenty inches from his snout to the tip of the tail, each of the three portions of his body being of about equal length. A huge head, with a curved very much overhanging upper jaw; a stout body, covered apparently with a tough skin, and tail of some length. The gun soon put an end to his existence. The natives, who call him a *Chundengo*, assert that he will attack a man unprovoked, and that his bite is very fatal. I had been rather incredulous as to the venomous properties of several animals when asserted by natives, but I have since learnt that such a lizard does exist, with all the power attributed to it.

After a good shower of rain, *Frogs* of various sorts make their appearance, and the instant the sun has disappeared below the horizon, they commence their dismal chorus, making night hideous.

Of the insect tribe, I may briefly notice the yellow *Scorpion*, which is eagerly attacked and devoured by domestic fowls. Several kinds of beautifully painted butterflies, and a handsome grasshopper, green on the back with two parallel rows of bright blue spots, and orange on the belly.

Of *domestic pests*, I must refer to *Rats*, which abound in civilised dwellings all over the East. I have had them run across my face at night, finding the marks of their little claws on the tip of my nose in the morning. The common striped squirrel and house sparrows are also a nuisance; the former frequent the roofs of our houses, while the latter frequently build inside the rooms, and give great annoyance by their incessant chattering. A minute fly, which is for ever attempting to fly under one's eyelids, and that pretty little creature the mosquito, complete my list of pests. I latterly learned to despise the last named, even so far as to dispense with mosquito curtains or punkahs at night. In this district I met with neither cockroaches nor white ants, though I have seen plenty elsewhere.

Once or twice a year, the rivers, from some some unknown cause, become full. The waters, however, as suddenly recede, leaving in the pools some very palatable *fish*, with large scales. If these rivers had become full *after* the rains, I could understand it, but I refer to a period

when hardly a drop had fallen, and am inclined to attribute the phenomenon to the wind blowing the waters up the channel from the sea.

As I have before stated, the country is an almost perfect level, though in the westerly parts of the Peninsula are a chain of mountains inhabited by the "Wagheers," who gave our troops so much trouble shortly before my visit. As far as the eye can reach, are to be seen clumps of trees, denoting the sites of ghaums (villages), and in the hot weather the mirage gave the appearance of a chain of lakes. I have seen as many as five or six distinct mirages from my window at one time. The thermometer reached at its highest, indoors, 112° Fahr. at noon, sinking but very few degrees at night. Nevertheless, the heat was not unbearable, and I was often out in the morning till past eight o'clock. Why is it that in the tropics, exposure to the sun at an angle of 45° should be dangerous, whereas at home we often do not feel it, though much higher?

But what is that red thick cloud that I notice gathering in the bright clear atmosphere in the South? We shall soon see. Onward it comes, darkening the sky; a rushing wind goes before it, now it is upon us, blinding us with sand, filling every cranny with a fine impalpable dust. Eyes, ears and nose become choked with it; fortunately it does not last long, and in half an hour I call the servants to dust the rooms and make all tidy again. Such is the sandstorm of the desert, as this place appears now. Sometimes the phenomenon is varied by whirling columns of sand, rising hundreds of feet into the air, maintaining themselves on the perpendicular for several minutes, and then dissolving into space. Fortunately, the place does not remain a desert for ever; after the rains these arid plains will be covered by a luxurious crop of the cotton plant, those fields, irrigated with so much patience as before described, by the tall rank growth of the Juwari Dall and other vegetable products.

Various incidents serve to beguile the time; occasionally a troop of acrobats, chiefly women, perform in front of the bungalow; and on one occasion Mr. Kent was visited by the heir to the throne of a neighbouring prince, the "Manath of Bimnath."

Bimnath is distant about fifteen miles from where I live, and the Manath is Prince-Bishop of the place. Being celibate, he

has to select his successor from amongst his subjects, who thus becomes his heir. Once a year a great festival and fair is held in honour of the sacred shrine, and I am told that the Prince-Bishop draws a revenue from the contributions of the faithful, on this occasion only, of an annual value of over two thousand pounds. Another time I make a journey to Wudwan, distant thirty miles, by a wretched country cart, and it takes me twenty-two hours. Crossing the dry river half a mile in breadth at Wudwan, the wheels sink so deep in the sand, that I have to get out and walk in the burning sun till the opposite bank is reached.

Wudwan is a large thriving town, the capital of the native state of that name; it possesses a chief, or thakoor, and government of its own, and pays a certain yearly tribute to the British. In return for this, we send them a political resident, who administers British laws in the name of the independent government. There is no other European in the place. The reigning sovereign is an old man in his dotage, living at a large substantial palace about two miles off. His son having killed himself with drink and opium, the grandson is the heir apparent. While I was there, the lad paid a visit to the Resident, accompanied by his guardian.

Mr. Kent has very little to tell of the native population. He says:—

My two servants, besides a Parsee youth with whom I was connected in business, and his father, who held a post under government, were the only English speaking natives in the place. The youth was my constant companion and interpreter, in dealing with the natives, and all my information about them was obtained through him. As you are probably aware, besides the distinctively religious castes amongst the Hindoos, there is a separate caste for almost every trade or profession, some of which are esteemed higher or more worthy than others. They are in a certain sense antagonistic to each other. The high caste man will not associate or use the same vessels even as a low caste man. Amongst the higher castes, a peculiar sacredness is attached to animal life, while the low caste man, or Mussulman, does not hesitate to destroy it when it comes in his way. Thus I have seen a high caste man rush out of his dwelling to remove a snake out of the way of some low caste men, who were pelting it with stones. The

cultivators of the soil were mostly Borahs, a sort of heretical sect of Mussulmans or Mohammedans; while the trading community were Maharajahs, the abominations of whose worship excited so much indignation in Bombay a few years ago, through a public exposé. Yet I have known some worthy men of this caste. One such was a continual visitor upon me, always, of course, accompanied by my Parsee friend as interpreter. He was my banker, and cashed my cheques in Bombay when needed. I used to discuss several matters with him, religion, however, excluded, which he deemed, with many of our own countrymen, too holy and sacred a thing for rational argument. We discussed, however, the Indian mutiny, and he palliated the atrocities of the mutineers in slaying women and children, on the ground that they were fighting for their country, though I charged him with inconsistency in his tenderness for the brute creation. A few days before, he had made off in holy horror, at seeing me load my gun for the purpose of shooting a Koncroni which had made its appearance. "But you must admit," said I, "that India is much more justly governed now than she was under her native rulers." This he quite admitted, but added that it was very expensive. The next topic was the education of women, and of this he totally disapproved, holding that women, when taught to read and write, deteriorated in moral character.

Justice is administered by a "Mamlutdar," or police magistrate, and a "Sudder Amin," or civil judge. Shortly before I left, I had a very amusing colloquy with a Mamlutdar, who called upon me; a pompous gentleman of the Prabhu caste, and, as I was told, not unamenable to venal influence. "Sahib is going to leave this place." "Yes." "I am sorry, very sorry, that Sahib is going away, because Sahib is a very good man, and I think if Sahib would remain, this place would be much benefited." "Indeed." "Yes, Sahib is a very good man."

The object of all this flattery was soon manifested.

"Sahib knows the collector at Ahmedabad?" "Yes." "And will call on him?" "Certainly." "Well, if Sahib will say I Mamlutdar is very good Mamlutdar, then Sahib is very good man." I, of course, replied that the conduct of his magisterial duties would be placed in its proper light.

Besides the above, Bheels and Rajpoots would occasionally visit the village, and tribes of gipsies, ever wanderers in tents.

Mr. Kent next gave the following description of a thunderstorm which occurred just before his departure from Dhundooka :—

One Sunday morning in the month of August, a huge black thunderstorm came up from the north, and then commenced a succession of thunderstorms which lasted all the day, amidst torrents of rain, which however drove from the southwest. The sky presented a most singular appearance; a long black line of thunder cloud, curving inwards, stretched across the heavens, in relief to the dull grey of the rain-clouds, which overspread them like a canopy. In the evening it was reported to me that a portion of the wall of the factory, which stood not far from my bungalow, had fallen in. I immediately visited the spot, and found the report only too true. The night passed, and though the thunder had ceased, the rain still descended in torrents, beating furiously against the houses and the factory. How shall I describe the destruction caused thereby? Unfortunately, chunam, the mortar of the country, was scarce and expensive in this part of the country, the consequence was that most of the houses were built with mud between the brick, instead of mortar. In the case of my dwelling and the factory, there was, it is true, a pointing of mortar outside the mud. Nothing could withstand the furious rain. The outhouses connected with my residence were already partly in ruins. To protect, however, that portion occupied as a kitchen and by my servants, I caused the wall on the south, against which the rain beat most furiously, to be covered over with pieces of gunny cloth, which effectually prevented the rain getting into the walls. The factory, with its long exposed surface of wall, was in ruin. With my glass I could see that in the village many houses were in similar case. Still the rain descended. How could the house over my head stand it. I had no fear, as the width of the verandah effectually kept the rain from the walls. But I was obliged to give shelter to some of the poor creatures connected with the factory, whose places were utterly fallen. And indeed it was a sort of companionship to me. It was not until near noon on Wednesday that I saw a break in the sky, and in the course of an hour the rain had ceased, after an incessant down-pour of about seventy-six hours' duration. The country was one great swamp; and the young rising crops were entirely destroyed. The village could only be reached by swimming in some places, where the road fell into hollows, and it was nearly three

weeks before letters again made their appearance. With the letters also came my Parsee companion, who had gone on a visit to Ahmedabad, when the flood-gates of the skies opened. He reported that he had intended visiting Surat, and perhaps Bombay, but that the rains had destroyed the railway in several places, including part of the bridge over the Nerbudda, as before reported. He had seen the remains of several villages which had been washed away by the floods, and the carcases of animals that had been drowned were to be seen everywhere.

The wide-spread destruction caused by this thunderstorm made the return journey a task of infinite difficulty ; the luggage was sent on by buffalo, while the travellers betook themselves to the saddle, their road being often no more than a bridle-path, lying between a vast expanse of water on either side, "sometimes having to cross streams with the water up to their horses' girths, at others passing through fields between the tall blades of the Juwari, while occasionally the remains of a village swept away by the flood" met their view.

At Dholka they dismissed their horses, and engaged country carts for their further conveyance to Ahmedabad, but in crossing the river Sabermuttee, one of the vehicles upset, and Mr. Kent's packages, containing clothes, books, and provisions, were all thrown into the water, and either lost or rendered useless. When they reached Ahmedabad, they found that the recent heavy rains had been general throughout the district of Guzerat.

In Baroda, Europeans had been drowned in the streets ; the total rainfall had been 45 inches, and as there had been hardly any rain but what I have described, this would give an average of about 15 inches to each of the three days of rain ! This, though half as much again as the total rainfall for a year in England, would have been for the year a very light amount as compared with some places in the East. On the Malabar coast, I have known 130 inches rain per year. At Mahableshtar, in the Sattara district, the rainfall is said to be over 200 inches, and one place in the Himalayas (I forget the name) has earned the unenviable reputation of a yearly rainfall of 800 inches.

The causes of these differences in rainfall are but little understood, and those that are put forward are seldom satisfactory.

After leaving Ahmedabad, I halted one night at Surat, and thence proceeded to Bombay, where I spent some days in visiting my friends, and then took a passage home to this town by the good Inman steamship, "City of Manchester."

FRENCH FRONTIERS: AN HISTORICAL REVIEW OF TERRITORIAL CHANGES IN FRANCE.

By JAMES BIRCHALL.

THE vast territory enclosed by the Alps and the Rhine on the east, and by the Pyrenees and the three seas on the south, west and north, has from the earliest times struck the most observant men of their age, as a country nobly situated, and marked out by nature for the home of a great people. This territory, termed by modern geographers the French Region, and Gaul by the Ancients, was regarded by the Romans as their richest province, whose natural boundaries appeared to them as if they had been providentially erected by some tutelary deity for the protection and prosperity of a compact and united people.

It was here, therefore, that the conquerors of the world sought to establish a New Empire, as it were, wherein their institutions, laws and language should find a permanent and secure asylum, within the confines so peculiarly favourable to the foundation of another magnificent State. They were further induced to this by the stern and resolute spirit of the people, and the aptitude they had already displayed for dominion—virtues which could not fail to extort the admiration of the Romans, and persuade them to adopt a policy of confidence and sympathy towards a race whose national character was so very similar to their own. The direct results of this treatment were that Gaul became more Latinized than even Italy itself, while her material and intellectual prosperity continued much longer than that of the Cisalpine Provinces, because she was further removed from the corrupting influences of the metropolis.

But the empire so eagerly anticipated was never consti-

tuted, and those splendid frontiers, with the fall of Rome and the invasion of the barbarians, ceased to embrace within themselves a people living under the protection of one code of laws, and speaking for the most part a common language.

The recovery of these lost frontiers, and the constitution of a united monarchy within their limits has been the dream of those who have succeeded to Roman rule therein, from the time when Hugh Capet wrested the sceptre from the weak hands of Charlemagne's imbecile successors. Under the influence of this illusion, France has aspired to uniformity and completeness throughout her whole history, and she has constantly sought to draw within herself and amalgamate whatever was French, and to transform or Gallicise whatever came to her from abroad. Wherever the French race existed or the French language was spoken, wherever mountain or river offered a bulwark to the integrity of French soil, there the French monarchy has sought to fix its sway, and establish its supremacy. A review, therefore, of those circumstances which have distinguished the most important attempts of the French sovereigns to rectify, as it is termed, their boundaries, and to accomplish the grand work of unification, would present the history of France in one of its most remarkable aspects, and form a really profitable subject for philosophical inquiry.

The earliest historical inhabitants of Gaul were those people who gave their name to the country—the Gauls, Kelts, Kymri, or Gaels. The Phœnicians found them in the land as early as the twelfth century before the Christian era, and they appear to have been aboriginal in the country, and not to have migrated from Asia, as is generally supposed. At all events there is little evidence in favour of such an hypothesis.*

* *Journal of Anthropology*, No. ii. Oct. 1870, p. 188.

This great race was divided into a multitude of independent, federated, or hostile tribes. In the north and north-west dwelt the Kymrians or Belgians, who were of German extraction; the territory comprised between the Pyrenees, the Garonne and the ocean was occupied by the Aquitainians, or Ligurians, of Iberian race, and in the centre were the Gauls proper.*

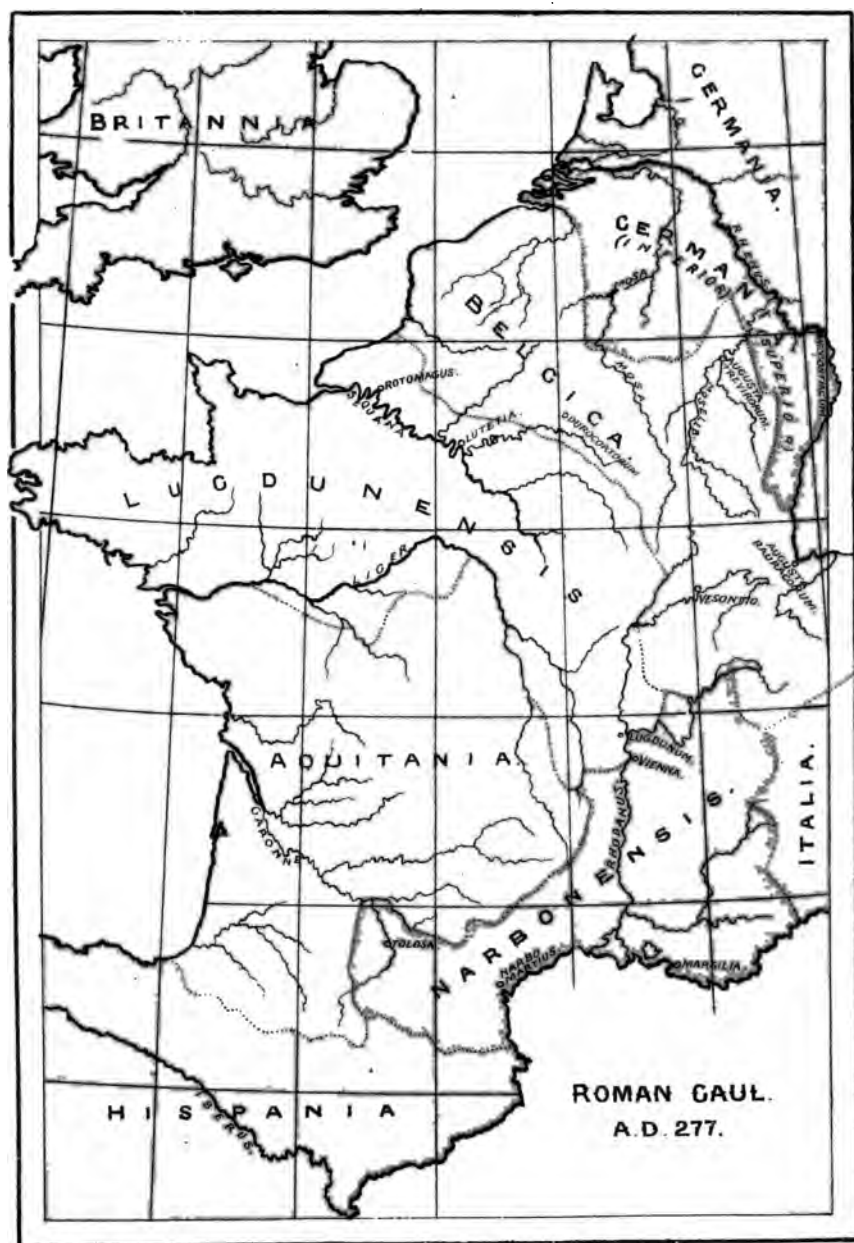
The history of the Gauls may be traced back as far as fifteen hundred years before Christ. At this date, when the children of Israel were on the eve of their departure from Egyptian bondage, the Gauls had established themselves in the province of Galicia, whence they spread themselves southward to Andalusia, and, amalgamating with the natives, formed the mixed race of the Celtiberians. Within a century afterwards, they crossed the Alps, and founded the kingdom of *Umbria*, so-called from the name of one of their invading tribes; and in the sixth century before the Christian era, they passed the Rhine, and, following the valley of the Danube, obtained a settlement in Illyria. The more adventurous of this band penetrated still further to the eastward, and in after times came in contact with Alexander the Great, whose successors were unable to prevent their overrunning Macedonia and Greece, and despoiling the Oracle of Delphi. Thence they passed the Hellespont, and, after varied fortunes, ultimately rested in that province of Asia Minor to which they gave the name of Galatia.

While these roving bands were thus spreading themselves eastward, others of their countrymen were continually crossing over into the plains of Northern Italy, and harassing the Etruscans and Romans. But after their famous capture of Rome, their strength in Italy seems to have become exhausted; they gradually gave way before the advancing

* Phocian colonies occupied important points on the southern coast, Marseilles being the most remarkable.

Republicans, who erected garrisons on both sides the Po, and, after the defeat of Hannibal, completely wrested Cisalpine Gaul from their authority. During the second century before Christ, the Romans pushed their conquests beyond the Alps, and founded Aix, in Provence, about B. C. 124. Then followed the exterminating wars under Julius Cæsar, in a century after whose time the Gauls had become so commingled with their conquerors, that they ceased to exist as a distinct people. The national history of this adventurous race thus terminates with the first century of our era ; that of France proper does not commence till the fifth, and, during this interval of four centuries, Gaul was a province of the Roman empire, without national spirit and without a popular government.

This province covered a much more considerable space than present France, even when we omit that part of it which lay on the Italian side of the Alps. The maritime boundaries, and the Pyrenean frontiers with slight exception, remain unaltered ; but on the east, Gaul contained a portion of Piedmont under the name of the Maritime Alps, Savoy, Valois, and all their approaches on the coast of Italy, together with all Switzerland joined to Franche-Comté, under the name of the Sequanais. Northward the boundary followed the Rhine, from its exit out of Lake Constance to its junction with the Meuse. The whole province was broken up, for administrative purposes, into several subdivisions, the number of which varied from four under Augustus, to seventeen under Gratian. The latter may be briefly enumerated in this order—the two Germanies and the two Belgioms along the Rhine, the Sequanais, the Grecian Alps and the Maritime Alps, the two Narbonnais and Viennais upon the Mediterranean, the two Aquitaines and Novem Populania, and finally, in the centre of Gaul, the four Lyonnais. The seven provinces indicated in the map



(No. 1) were in existence during the reign of Probus, and are those of most common use in classical geography. Contemporary with these divisions, we also read of three others, whose names were derived from a prominent peculiarity in the costume of the inhabitants.

The districts near the Rhone, where the people, being most Romanised, wore the toga, were styled *Gallia Togato*.

To the north of the Loire, the natives, less under the influence of the conquerors, retained their primitive manners, and wore the long plaited hair which still marks the Bas Bretons. This region was accordingly named *Gallia Comata*.

South of the Loire, the national costume was distinguished by long trousers, called *Braccæ*, for which reason the district was called *Gallia Braccata*.

At the time of its conquest by Julius Cæsar, the provinces were further distinguished from each other by linguistic differences. Aquitainian, Celtic, Belgic and German were all spoken in the country; but in the fourth century the first three had become lost in a new and Latinised language, and the Teutonic speech alone remained in the two Germanies.

To superficial observers, the province presented all the appearances of opulence and prosperity. Roman institutions had taken deeper root here than in any other portions of the Empire, and the people basked in the sunshine of imperial favours more frequently than any other of the subjected nations. Nismes, Arles, Treves, and indeed most of the chief towns of modern France, still contain proofs of this fact. But with all this external show of wealth and comfort, the internal condition of the country was that of a conquered and enslaved province. There were numerous princely families, whose patrimonies covered whole provinces, and who participated in the highest Roman civilisation; and towns which revelled in all the art and luxury of their imperial masters.

But the earth was cultivated by a servile peasantry, who saw their teams, their crops, and even their humblest means of living carried off, and no one caring for, or daring to redress, their wrongs. Even the wealthy existed under the daily terrors of banishment or confiscation ; while those estates which lacked lawful heirs were escheated to the Emperor, and, by thus becoming converted into public property, served to augment the abuses which already existed. Besides a poll tax, which was levied with equal rigour on rich and poor, there was a regular tax upon land, called the *impost of indiction*, which was equivalent to thirty-five per cent. of the net annual produce. In addition to this, there were instituted extraordinary imposts, or *superindictions*, which the prefects, in the earlier times of the Roman dominion, and latterly the emperors, exacted at their discretion. The full amount of revenue which these land taxes was calculated to produce was always demanded, whether the proprietors were few or many ; so that those who remained on their estates were compelled to pay for defaulters—those who had become insolvent, or who had abandoned their lands to escape gradual impoverishment, or the ravages of the soldiery and the barbarians. The oppressions under which the burgesses of the towns laboured, though of a different character, were equally ruinous. Originally the chief burgesses, or curials, were elected to a council, or senate, and invested with powers which were intended for the good order and protection of the concerns and interests of their respective municipalities. The magistracy of a great town was therefore regarded as a highly honourable and dignified order. But imperial rapacity soon changed this ; the curials were declared bound for all the exactions imposed on their fellow citizens, and the result was that their order became degraded into a mere horde of tax gatherers. The provincial magistracy thereupon passed into the hands of unscrupulous adventurers, who, having farmed

the revenue, were not deterred in their extortions by any sentiments of delicacy or honesty.

While the Gauls were thus compelled to pay dearly for the protection of their Roman masters, that protection had become utterly worthless and inefficient. The Roman armies had ceased to represent the Roman nation, and were composed almost entirely of barbarians, under the command of barbarian generals, whose protection more frequently took the form of plunder, than that of defence against aggressors. All this chaos and anarchy was the necessary attendant of the disruption of such an empire as that of Rome. There had grown up new masters in Gaul, who tyrannised over the people in the name of the old—a fact which is singularly illustrated in the names of the contending tribes that fought in the momentous battle of Chalons—where we find Romans, Gauls, Visigoths, Burgundians, Franks, Alans, Saxons and Britons under the banners of Rome, and battalions of the same nations enlisted in the hosts of Attila and his Huns.

The divine frontiers, in fact, had become rudely violated, and the barbarians, who had succeeded in establishing themselves within the province, had found an abundance of all those things most likely to tempt their cupidity and ambition. They had, furthermore, found the country to be an easy conquest. There was no mountain rampart behind which the natives could take refuge, as the Byzantine behind the Balkan, or the Italian behind the Alps. The Rhine had never offered any serious resistance to the inroads of any invaders, and the name of Gaul was not enrobed in that superstitious terror which hung about the mighty name of Rome. Roving bands had, accordingly, from the first establishment of Roman power in Gaul, constantly harassed the Rhine frontier, and had been allowed to settle in the border lands, chiefly during the time of Probus. But it was not till the fifth century that the more systematic invasion of

the Visigoths, Burgundians, and Franks brought about the first conspicuous change in the Eastern frontiers of France.

The decisive event which gave these watchful barbarians the opportunity of advancing towards the Rhine, with the intention of crossing it into Gaul, was the invasion of Italy by the Goths (A. D. 400), which compelled Stilicho to withdraw the legions from beyond the Alps, and thus leave the province open and defenceless. The Vandals were the first to reach the river, where they already found the Franks and the Alemanni. The Suevi, Burgundians, and Alans quickly followed in their train, and Gaul, as a Roman province, ceased to exist. The Suevi penetrated into Spain, and there formed a principality ; the Burgundians erected a kingdom, which enclosed the basin of the Rhone. About the same time the Visigoths established themselves in Aquitaine and Narbonnais, by driving the Vandals beyond the Pyrenees ; while the Franks were as yet no more than a federation of various tribes, resting on the right bank of the Rhine from the sea, up to the confluence of the river with the Maine (A. D. 406-413).

The monarchy of the Visigoths seemed destined at one time, under the reign of Euric (466-484), to extend over the whole of Gaul and Spain. This sovereign acquired the Loire and the Rhone as the northern and eastern frontiers of his kingdom ; in Spain he subdued the province of Tarragona ; he conquered Provence, and even threatened Armorica. Had he lived long enough, it would undoubtedly have been the Visigoths, and not the Franks, that would have reconstituted the Gaulic provinces. But he died prematurely at Arles, and left only a son of tender age to be his successor ; while, at the same time, the Franks under Clovis were beginning to make themselves felt throughout the northern and eastern provinces. This chieftain first pushed himself into prominence by the defeat of the Alemanni, or Swabians, in the great



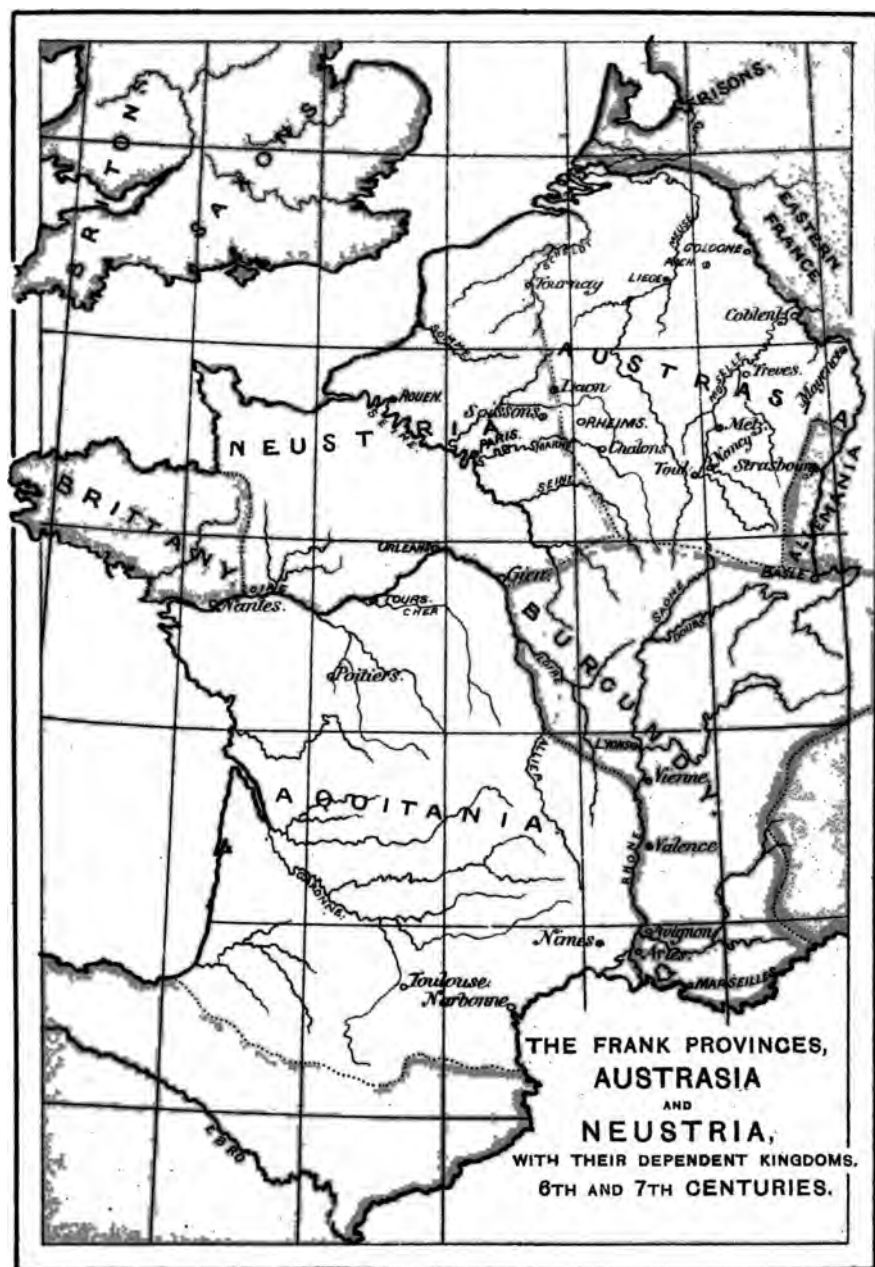
battle of Tolbiac, or Zulpich, near Cologne (A. D. 496). He next overran the kingdom of the Visigoths, and reduced their empire in Gaul to the province of Septimania, between the Rhone and the Pyrenees; the Burgundians were compelled to acknowledge his supremacy; while, to secure unchallenged the fruits of his conquest and ambition, all the independent chiefs of his own tribe and family were put to death, by force or treachery. But that event which gave him the most durable authority over the subjected districts, and was of material service in extending the boundaries of his dominion, was his marriage with Clotilda, the Catholic niece of the Arian king of Burgundy. This union brought the barbarian chieftain within the great and growing influence of the orthodox Latin Church, which, since the withdrawal of imperial support beyond the Alps, felt the necessity of some other equally powerful ally against the Visigoth and Burgundian Arians and their secular auxiliaries. At this crisis, the Frank providentially stepped in to supply the need; while the Church was equally useful to the new invaders, in smoothing the way for their advance upon the old Gallo-Roman populations, by whom her authority was venerated. This new alliance was cemented by the baptism of Clovis at Rheims, after his subjugation of the Alemanni, when the Church took solemn possession as it were of the barbarians, and Clovis became, by a singular destiny, the only king, barbarian or civilised, who professed the orthodox faith.*

On account of these conquests, and this alliance with the church, French writers have frequently assigned a settled character to the kingdom of Clovis, whom they have further dignified as the true founder of their monarchy. But Sir James Stephen† has exposed the error of this view, and has

* Anastasius, Emperor of the East, had fallen into some heresy on the subject of the incarnation; Italy was ruled by Theodoric the Great, the Ostrogoth, and all the Goths were Arians.

† Lectures on the *History of France*, I. 93, 94 (3rd Edition, 1857).

shown, what is now generally acknowledged, that the famous Merovingian was no better than his contemporary barbaric chieftains—a leader of men, and not king of a country of whose frontiers he was ignorant, and who led his soldiers to conquest for the sake of spoil, and not for any desire of organising a realm. In the words of Sismondi (*Hist. de la Français*, i. 245), he was a captain of adventurers; and his great accession of territory was the consequence, not altogether of a conquest, but of a voluntary association, of which his prowess and good fortune made him the acknowledged head. This view is further confirmed by the fact that, at the death of Clovis, his dominions were divided amongst his four sons, according to the Frankish custom, and that each of these received the title of king. Their respective capitals were Metz, Soissons, Paris, and Orleans, to each of which fixed boundaries were attached. But this fourfold distribution was more a division of the Frankish army than a partitioning of the soil; the object being to secure to each “king” an equal number of native Franks, as subjects and soldiers, the greater part of whom were cantoned, in armed bodies, between Paris and the Rhine. For this reason, Hallam calls these capitals “centres of force,” from which the brothers might render each other mutual assistance in case of revolt. The emergencies thus provided for were of frequent occurrence; and it would be a wearisome and fruitless task to follow in detail the changes which were perpetually following each other through civil wars and family dissensions. After nearly fifty years of such confusion, the four kingdoms were reunited under Clotaire I., the youngest and sole surviving son of Clovis (A.D. 561); but after his death they were again divided among his four sons, together with many extensive additions which had been acquired in the meantime. At this date the empire of the Franks was composed of four great provinces in Germany, and four in



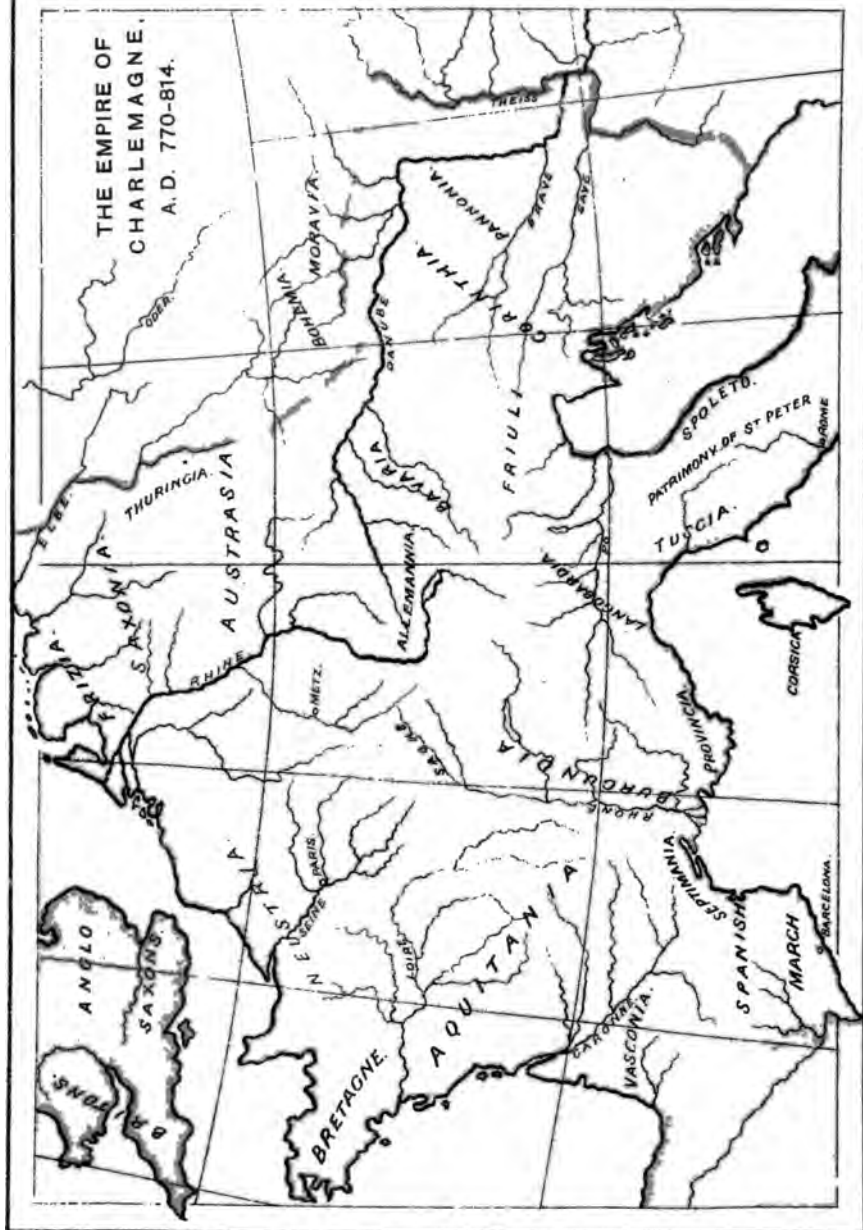
Gaul, viz., Germanic or Eastern France, which lay on the Maine and the Weser; Germany, Bavaria, and Thuringia; and Austrasia, Neustria, Burgundy, and Aquitaine. The four German provinces were allies, rather than subjects, and were governed by their own hereditary dukes, who were almost independent. On the other hand, Burgundy and Aquitaine were two subjected kingdoms, which the Franks always regarded as foreign, and never succeeded in assimilating or amalgamating with the rest of their dominions.

Properly speaking, therefore, France, that is, that portion of Gaul actually occupied by the Franks, only extended from the Rhine to the Loire, and did not include Brittany, which had never fallen under any yoke, though the natives paid a nominal tribute to the Merovingians. It was divided into Austrasia and Neustria, the exact limits of which are very doubtful, but may have corresponded, to some extent, with the two great distinctions of Salian and Riparian Franks. In its widest sense, Austrasia included all the outlying German tribes and dependencies, which at any time claimed to form a part of the Frank confederacy. In its more limited signification, it consisted of Upper Austrasia, which lay upon the Moselle, and Lower Austrasia, between the Rhine and the Meuse. Neustria was on the west of this province, from which it was separated by a line which extended nearly from the mouth of the Scheldt to Bar-sur-Aube. Three of the capitals, Paris, Soissons and Orleans, were situated in Neustria; Rheims was in Austrasia, a few leagues distant from the line of division.

These two Frankish provinces were quite distinct, in political interests, national habits, laws and institutions. The German element predominated in Austrasia, because of its proximity to the original seats of the race, and its greater distance from the civilising influences of Roman Gaul, which enabled its people to preserve the spirit of their Teutonic

ancestors, and the habits and ideas of their old free life in the forests of their Fatherland. For these reasons the Austrasian exhibited a greater rigidity of character than the Neustrian, and he cherished a ruder and fresher sentiment of nationality. On the other hand, the Neustrians were thrown more completely among the Gauls, and were in fact surrounded with Roman life and institutions, which they very readily adopted. They were therefore rapidly absorbed into the Gallic Roman populations whom they had conquered. These influences very strongly coloured the history of the two provinces; and their early annals are simply a record of the rivalry which was perpetually maintained between the Germanic element in Austrasia, and the Romanic element in Neustria. The Austrasian territorial lords, with their Teutonic partialities, were ever aiming at the establishment of their independence, and the overthrow of those restraints which Clovis and his successors had imposed upon their freedom of action. The great conflict which thereupon ensued reached its greatest violence during the remarkably long reign of Queen Brunehaut (567-613), whose determined attempts to curb the overgrown power of the aristocracy, and introduce Roman principles of government, led to her tragic death, and the ultimate overthrow of the house of Clovis. On the death of her husband, Sigbert, she had assumed the regency and the guardianship of her infant son, Childebert; but the seigneurs appointed a guardian of their own, as major domo, or mayor of the palace, and by this act virtually made themselves independent of the crown. They followed this up by next wresting from the queen her assent to the Treaty of Andelot (A.D. 587), which guaranteed to them the perpetual possession of their beneficia, or feudal territories, and completed their emancipation. This decisive victory of the Germanic principle in Austrasia has been productive of the most important consequences upon the

THE EMPIRE OF
CHARLEMAGNE,
A. D. 770-814.

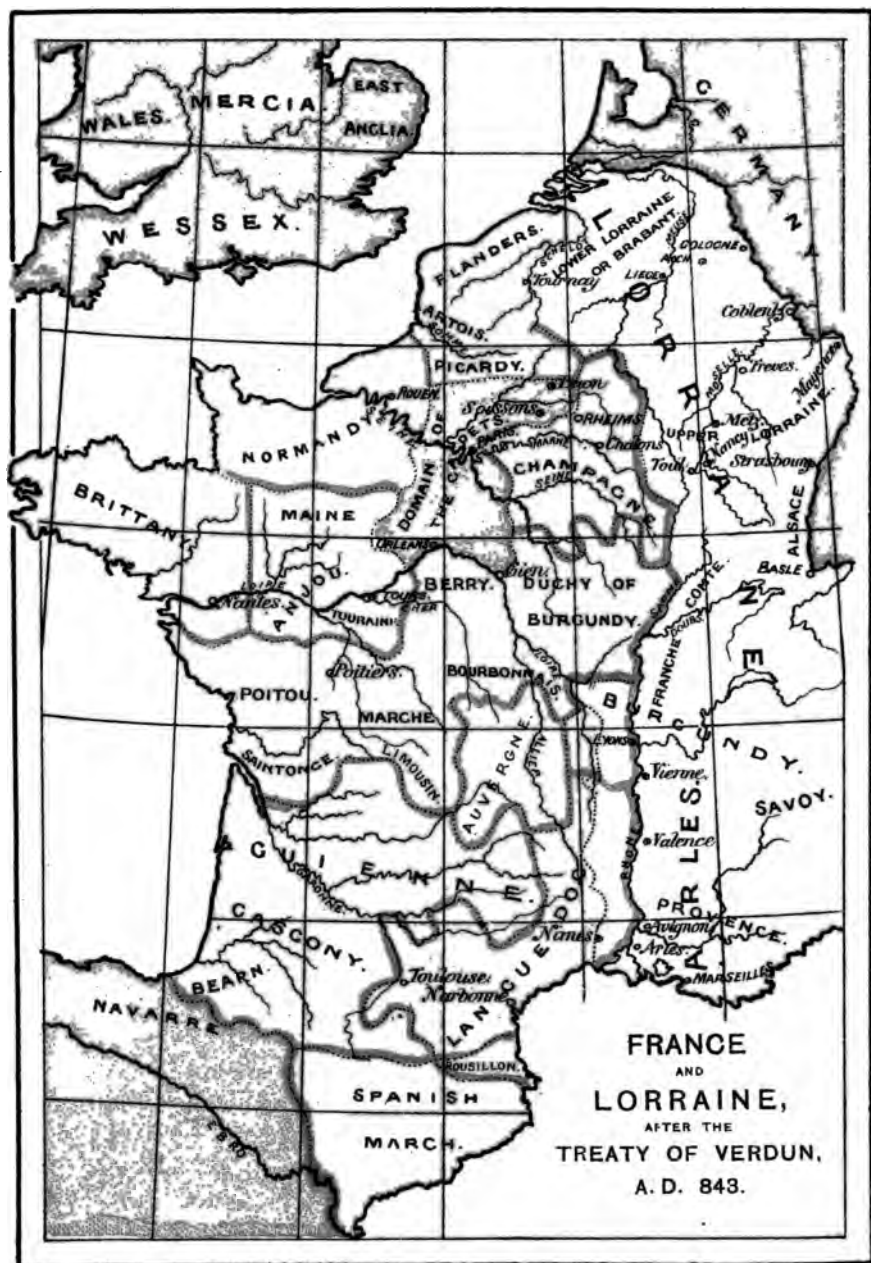


political character of the states of central Europe. It prevented the permanent establishment of absolute power on the model of Rome, and delivered the German populations from the dread of falling under those influences of degraded Roman and corrupted Gaul, which threatened at one time to leaven all the nations who succeeded in occupying the territories and provinces of the decayed empire. This immense benefit was further secured to modern Europe by the great victory which Pepin d'Heristal, Duke of Austrasia and mayor of the palace, achieved at Testry (A.D. 687) over the rival monarchy of Neustria. The personal insignificance of the sovereigns, and the constant minorities which marked the succession to the crown, had also rendered necessary in that kingdom the institution of the office of mayor. But there existed this difference: the mayors of Austrasia prosecuted, for their own aggrandisement, the aristocratic system which had overthrown the royal authority; whereas the mayors of Neustria maintained a struggle against the encroachments of the lords, and in support of the crown. The collision between the two kingdoms, therefore, was, in the persons of their rulers, another phase of the conflict which existed between the Roman and the German, and marks the victory of Pepin as the second triumph of the Teutonic principle. "The Franks," observes Sismondi, "seemed for the second time to have conquered Gaul; it was a new invasion of the language, military spirit, and manners of Germany." (*Hist. de la Français*, ii., 170.) Hallam regards the benefices granted by Charles Martel, after his victory over the Saracens, as the third prominent manifestation of this Germanic spirit, which, he proceeds to remark, it required all the splendid qualities of Charlemagne to keep under restraint, lest it should destroy altogether the royal authority and the dominion of law. (*Mid. Ages*, i., 118).

This theory of the antagonism of races will be familiar to

all readers of Thierry's *Merovingians* and his *Norman Conquest of England* ; but it must not be strained too far, and be made to account for those political revolutions which are often more due to personal peculiarities, motives of self-interest, and individual ambition, than philosophical writers are willing to allow. The special point under consideration is well discussed in an elaborate note to the first chapter of Hallam's *Middle Ages* (Note xii.), and need not, therefore, detain us from proceeding to notice the subsequent changes which affected the territory of the Franks under the rule of the Carolingians.

The empire which Charlemagne erected upon the victories of his father, and his own splendid achievements, extended over all Germany as far as the Oder and the Danube ; into Italy as far as the Volturno, and into Spain as far as the Ebro. This empire lasted only forty-three years, that is, during the lifetime of its founder, for after his death it was broken up by his younger son, Louis de Debonnair, who associated his eldest son Lothaire to the imperial dignity, and conferred the provinces of Bavaria and Aquitaine, as subordinate kingdoms, upon his two younger sons, Louis and Pepin. This arrangement not proving satisfactory, a further and more important partition of the empire was made in 843, by the celebrated Treaty of Verdun, by which the sovereignty that had been attached to the eldest brother in connection with the imperial dignity was done away with, and each prince held his respective kingdom as an independent dominion. This was the first complete separation of the French and German members of the old Frankish empire, and is the date from which the distinct and separate histories of the two countries actually begin. From this epoch, all those inhabitants on both banks of the Rhine, who, until then, had been designated almost exclusively by the name of Franks, began to be called by the more common



name of Germans; while all those who made use of the Romance language, and the dialects formed from the Latin, were styled respectively Italians, Aquitainians and Gauls. But the latter people were unwilling to renounce the glory which was attached to the arms of their conquerors, and they took for themselves the Latin name of Franci, and designated their country France. Such, according to Sismondi, is the origin of the name of the French nation.

All that part of Gaul situated to the west of the Scheldt, the Meuse, the Saone and the Rhone, with the Spanish March, was conferred upon Charles the Bold, the youngest son of Louis, who had died a few years before; the whole of Germany, as far as the Rhine, was given to Louis the Germanic; and Lothaire, who received the imperial title, joined to Italy all the eastern part of Gaul, from the Mediterranean sea, as far as the mouths of the Rhine and the Scheldt. This long strip of territory, so curiously indented and hemmed in by the kingdoms of France and Germany, became after this a perpetual object of quarrel between them; its geographical position prevented its ever becoming independent; and, having no distinct nationality, it had no other name but that of its first sovereign, Lotharingia, or Lorraine—the France of Lothaire. Before the end of the century it had become split up into two separate kingdoms: *Lorraine proper*, which fell to another Lothaire, younger son of the former; and *Provence*, which was given to his younger brother Charles. In 863 this last sovereign died, and then his dominions were subjected to a further subdivision. Provence, Dauphiny and Savoy devolved to his eldest brother, Louis II., Emperor and King of Italy, who added to these titles that of King of Provence; and the provinces of the Lyonnais, Transjurane Burgundy, Viennese, Vivarais, and the country of Uses fell to the share of Lothaire, under the title of the kingdom of Burgundy. A rapid succession of fresh

partitions followed these changes. In about forty years the empire was again nearly united under Charles le Gros, son of Louis the Germanic ; but after his deposition in 887, it was finally and entirely dismembered, and seven fragmentary kingdoms constituted : Germany, Italy, France, Lorraine, Burgundy, Provence and Navarre. Of these, Provence and Burgundy, comprising the provinces between the Rhone and the Alps, with Franche-Comté and a great part of Switzerland, were bequeathed to the Emperor of Germany in 1032 ; another portion of Burgundy was converted into a duchy by Charles the Bold, and conferred upon his brother-in-law ; and, after the accession of the Capets, was again bestowed by Henry I. (1031) to his brother Robert, in whose family it continued till the middle of the fourteenth century.

Lorraine, after various fortunes, also fell within the limits of the Empire ; but its union therewith was little more than nominal. It still continued to be a kind of March or Debateable land between the two sovereignties ; part of the people spoke the Roman-French language, and part were wholly German ; and the four important towns of Metz, Toul, Verdun and Cambray were always regarded as French. The kingdom was very early broken up into two duchies—that of Lower Lorraine, which acquired its more familiar appellation of Brabant, and that of Upper Lorraine, which included the district of Alsace (Der Elsass, the seat of the Ell). The latter province was inhabited by a race of almost pure Teutonic descent, whose aristocracy were distinguished throughout the middle ages, together with their brother knights of the Black Forest, for those perpetual attacks upon the towns and the traders, which have given them the sobriquet of The Robbers of the Rhine. Alsace very soon fell into the hands of the Dukes of Swabia, from whom the Hapsburgs sprung, and it remained in the possession of this family till its conquest by Louis XIV., and subsequent annexation to

France by the Treaty of Ryswick. Lorraine will receive an additional notice as we proceed.

We have now followed the vicissitudes which befel the empire founded by Charlemagne, until that empire was entirely lost to his family. The remainder of this paper will therefore be confined exclusively to France, where the Carlovingians maintained the semblance of power for a century longer.

The convulsions which were produced by the frequent redistributions of territory were not only most calamitous to the people, as we can readily suppose, but also afforded the most abundant facilities for the Northmen to ravage the coasts, and eventually to establish themselves in the original province of the Franks. Under the lax government also, which necessarily existed, the dukes and counts of the various districts, no longer checked by a vigorous administration, became sovereign tyrants in their several territories; while the border lands of the Rhine were a perpetual prey to the numerous bishops, dukes, landgraves and others, who, far removed from any central power, whether of France or Germany, could not be well controlled by either. In France, these dukes were originally the provincial rulers over the seventeen provinces into which Roman Gaul was divided. But during the decline of imperial power, it became the practice regularly to multiply dignities, and to break up the provinces into two or more duchies, in order to create a greater number of titles. This practice was continued by the Merovingian kings, who appointed the dukes and recalled them at pleasure. But when a great lord had once established himself in a province, had appointed his officers and organised a military force, and especially if he had allied himself with the bishop and the clergy, it became a difficult matter to remove him. Hence the dignity became hereditary,

and, as the ancient provinces were parcelled out, the old names fell into desuetude, and new ones arose, indicative of those numerous distinctions of origin, habits, dialect, &c., which marked the settlements of so many various races. Sometimes the province received its name from the new invaders, as Burgundy, Bretagne, Normandy, Gascony; at other times from the appearance of the country, as Champagne; in other instances, again, from the name of its first chief, as Lorraine; or from some peculiarity in the language of its inhabitants, as Languedoc. The rulers of these several districts, formally acquired all their sovereign rights and titles in A. D. 877, when Charles the Bald was compelled to publish the edict of Chiersi, which legalised all those powers which the dukes had formerly exercised arbitrarily, and conceded to them the hereditary succession to their dignities and estates. This decree also conferred upon the counts, who had hitherto been royal officers, and not necessarily proprietors, the same rights of hereditary succession; so that after this they could not be distinguished from the great fief-holders. Contemporary with this exaltation of the aristocracy, it happened singularly enough that the monarchs lost their hereditary right to the throne, and the Chief of the nation, instead of nominating the Counts as his lieutenants, was obliged to procure his own election from them, as his peers. This is seen on the accession of Louis the Stammerer, when the nobles compelled him to take an oath, in which he was styled "King by the grace of God and the election of the people" (A. D. 877); and it is further shown in the election, on two or three occasions, of the counts of Paris and Orleans, who ended by displacing the Carlovingsians altogether, and founding, in the person of Hugh Capet, the third and most permanent race of French sovereigns (A. D. 986). Before this final overthrow of their fortunes, the last of the Carlovingsians retained little more territory than the

city of Laon and its vicinity ; they had hardly sufficient revenue left to furnish a scanty subsistence for their court ; and as the kingdom had been seized and appropriated by the nobles, the founder of the new dynasty was no more than the first among his equals, whom he was compelled to humour, if his dignity was to remain with his descendants.

But his patrimony lay in the most commanding position, in " the centre of force," and comprehended, under the name of the duchy of Neustria, all the country between the Loire and the Seine, as far as the frontiers of Normandy, and, under the name of the Duchy of France, most of the territory enclosed within the basin of the Oise. The county of Anjou was also feudally dependent upon this duchy. Thus situated, Hugh Capet was able to watch the conduct of his lords, to divide their forces, and interfere, with inevitable advantage to himself, in the perpetual wars which they waged against each other. Six of these lords shared with the new sovereign the finest provinces in the kingdom. The *Count of Flanders*, whose earldom extended from the Scheldt to the Somme, and who was, after the Duke of Lorraine, the most important of all the petty sovereigns in Lotharingia ; the *Count of Champagne* ; the *Duke of Normandy*, who claimed a kind of suzerainty over Brittany ; the *Duke of Aquitaine*, the *Count of Toulouse*, and the *Duke of Burgundy*, on whom the Count of Nivernois seems to have depended. Besides these six, the most prominent of the less powerful lords were the Duke of Gascony, the Counts of Vermandois, Poitiers, Barcelona, &c., all of whom were similar, in many respects, to the electors and princes of the German Empire.

As a further illustration of the relative power of the crown and its great vassals during the reigns of the earlier Capets, Sismondi gives us the following comparative scale. At the accession of Louis VI. (A. D. 1108), the fifth sovereign of the race, the royal domains comprehended about five of the pre-

sent departments ; the Count of Flanders held four ; the Count of Vermandois two ; the Count of Boulogne one ; the Count of Champagne six ; the Duke of Burgundy three ; the Duke of Normandy five ; Brittany five ; the Count of Anjou three. Thirty-three departments south of the Loire he regards as hardly connected with the crown, since the people of Aquitaine took no part in the elevation of Hugh Capet, and long refused to acknowledge his title. The territory now covered by twenty-one other departments was dependent on the Empire of Germany.

It will thus be seen that France at this date was, what I have described it in a former paper read before this Society, "a mere union of independent principalities, whose sole bond was the nominal one of feudal allegiance." Such an agglomeration of states, differently governed, of various origin and diverse interests, could not possess any of that vital force, which, by its equal diffusion of energy and resources, is essential to the existence of a body politic. The kings of France, therefore, from the foundation of the Capet dynasty, naturally acted upon a system which was specially devised for the recovery of those possessions which the Carlovingians had lost, and restoring compactness and organisation to the monarchy. With this object in view, the French monarchs always claimed, if they did not receive, the homage and allegiance of all the inferior princes. Even while the feudal vassals were setting at nought their feudal obligations, the rules of feudal tenure were enforced, in cases where they had no original application ; and provinces which had never been bestowed as fiefs by the crown were held, on the failure of direct heirs, to have reverted to the crown. And thus, by escheat or forfeiture, by marriage or succession, often by bequest or purchase, the royal domain of the Capets was being constantly extended ; and when fiefs were once annexed to this domain, it was held as a fundamental maxim of French law, that they could never

be alienated. (*Mid. Ages*, i., 254). It is therefore evident that there was always a strong principle at work for the unification of the country — a principle which was always enhancing the power of the crown, and depressing all conflicting powers, and which ultimately incorporated all the little sovereignties that distracted the country.

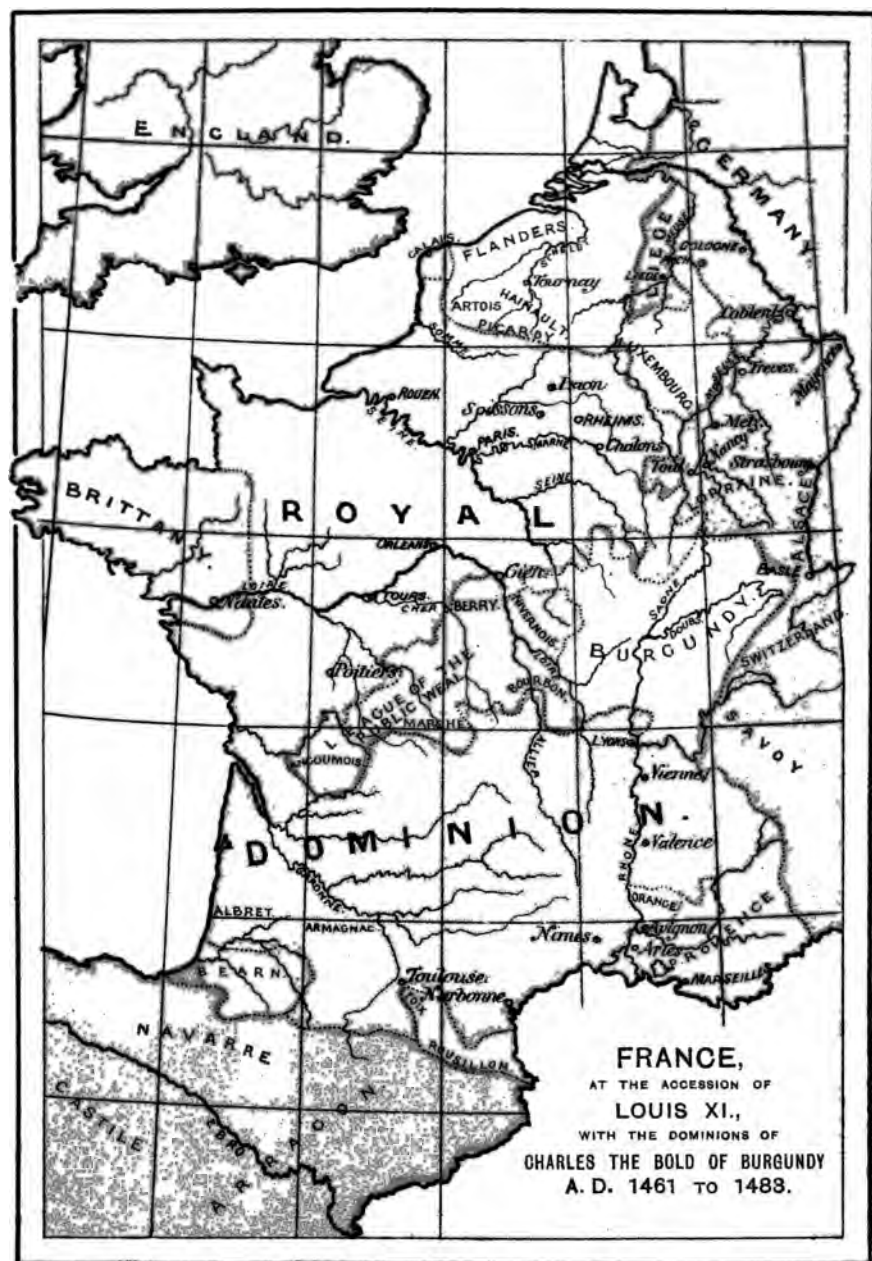
The most important augmentations of the royal domain which produced this result may be enumerated under three principal epochs. *First*, that which witnessed the vigorous policy of Philip Augustus and the paternal wisdom of St. Louis; *Second*, the age of Philip the Fair; and *Third*, the period during which Louis XI. and his son Charles VIII., by their intrigues, completed the consolidation of the kingdom, and secured the monarchy from all further apprehensions of dismemberment.

During the reigns of the earlier Capets, some small accessions of territory were made, *e.g.*, the French Vexin, and the viscounty of Bourges; but it was not before the accession of Philip Augustus that we can say the crown of France really began to recover its lost strength. This sovereign, whose ambition and military enterprise were greater than any of his predecessors from the time of Charlemagne, acquired the Vermandois and Amienois, and subsequently Artois, from the Count of Flanders (although the latter was afterwards lost again); but his greatest acquisitions were the provinces of Normandy, Maine, Anjou and Touraine, which he wrested from our own King John. The well known war against the Albigenses, which began about the same time (1208), led to further conquests. The county of Auvergne was appropriated, and the greater part of Languedoc was ceded to Louis VIII. by his cousin, the Count of Toulouse. The royal power was now able to cope single handed with all its feudatories united, and during the earlier part of the reign of Louis IX. the barons repeatedly found this out to their cost and humilia-

tion. The virtues and abilities of this sovereign contributed still further to consolidate the monarchy, by the institution of a definite code of laws, the firm and equal administration of justice, and the restitution of such lands as had been unjustly annexed to the royal domains. In his reign, the Spanish March was surrendered to the King of Arragon, on the marriage of Louis' eldest son with the daughter of that prince, but France was recompensed with substantial equivalents by the cession of Gevaudan, which had formed a part of the kingdom of Provence, and the remaining portion of the territory of Languedoc.

The next epoch includes the reigns of Philip the Bold and Philip the Fair (1276-1285-1314). Under the former sovereign, Poitou and Saintonge, which had been held by Alfonso, the brother of St. Louis, were incorporated, while the latter sovereign extended his authority over Champagne and Brie (1283), the heiress of which he had married before he came to the throne. By this transfer, as we have said before, the Dukes of Lorraine came to be vassals to the French king for certain cities which they held in Champagne. It was Philip the Fair, who, by a feudal subterfuge, obtained, for several years, possession of the Duchy of Guienne; he also acquired the countries of Angouleme and La Marche, upon a sentence of forfeiture against the reigning count, as well as the Lyonnais, which really belonged to the kingdom of Burgundy, but which now fell within the jurisdiction of the French monarch, much in the same way that Scotland would have fared had the schemes of the English Edward I. been successful.

We now come to the period of the Great French war between France and England, in which our own Edward III., in pursuit of his claim to the French crown, managed to restore to his continental dominions a small portion only of those which had been lost by his ancestor, King John. This



restitution, however, was but temporary, for in a few campaigns the English were deprived of all their conquests, and in a great measure of their original possessions in Guienne. During the second war with England, the crown of France was brought to the verge of ruin, chiefly through the minority of Charles VI., which left the nation without a head for nearly half a century. The contending factions of Armagnac and Orleans; the intrigues and ambition of John the Fearless, Duke of Burgundy, the only prince of the blood who displayed any energy or talent; his murder of the Duke of Orleans, which he openly avowed, because none were able to punish him, and his own murder afterwards, are some of the most prominent occurrences which preceded and prepared the way for Henry V.'s subsequent subjection of the country. Even after the expulsion of the English, and the loss of all their acquisitions except Calais, it required all the ability of Charles VII. to restore the royal authority, and bring the country out of the frightful chaos into which it had been plunged. The great nobility still possessed many feudal privileges subversive of order and impartial justice; and some of these, whose territories lay on the frontiers of the kingdom, as the houses of Foix, Albret, and Armagnac, continued to maintain a kind of semi-independence, while the Dukes of Burgundy and Brittany regarded themselves in the light of foreign princes, and potentates of equal rank with the sovereign. These seigneurs, combining with those princes of the blood who were jealous of Charles, formed that celebrated confederacy, termed the *League for the Public Weal*, which, under Louis XI., at one time threatened to entail upon the monarchy complete dismemberment. But this confederacy had too many heads; its strength was accordingly diverted in purposeless and imprudent enterprises, and its leaders were successively crushed by the prompt and relentless activity of Louis. He confiscated the duchy of Alencon;

recovered Normandy, which he had been compelled to grant as an appanage to his brother, the Duke of Berri, the leader of the League ; and he rid himself by assassination and the scaffold of others who had made themselves the most obnoxious. A greater enemy than all these, however, still remained — Charles the Bold, Duke of Burgundy, whose history is simply that of the last attempt made by a French vassal to overthrow the monarchy, and re-arrange its territory.

It has already been shown that, on the final disruption of the Carlovingian empire, a province of the kingdom of Burgundy was governed for ages by a line of princes originally connected with the royal house of Capet. During this period, the Duchy was not properly considered a French fief. But on the extinction of the above line, by the death of Philip de Rouvre, 1361, the province passed by inheritance to John, the first King of France of the House of Valois, who granted it as an appanage to his youngest and favourite son, Philip the Bold. In those days, feudal obligations were regarded as the natural ligaments of the monarchy, which was considered to be further and more materially strengthened when the frontier provinces were bestowed as fiefs upon the near relatives of the sovereign. This donation was therefore confirmed by John's successor, Charles V., and was largely augmented by the marriage of the new duke with Margaret, heiress of Louis van Male, Count of Flanders. Philip's feudal rights and prerogatives were thus extended over the earldom of Flanders, and the counties of Franche-Comté, Artois and Nivernois. His second son, furthermore, became Duke of Brabant and Limburg (1406) ; and on the death of the latter, in 1430, without issue, both these duchies fell to Philip the Good, the grandson of the former, who had already acquired Namur by purchase (1421). This prince carried the prosperity of his family to its height. He seized by force

the rich inheritance of his cousin, the celebrated Jaqueline of Bavaria, viz., the counties of Hainault, Holland, and Zealand, which, although they were fiefs of the empire, were very little dependent upon it, and had latterly become almost alienated from it. By the first Treaty of Arras (1435), the districts of Macon and Auxerre, and other seigneuries on the Somme, embracing the greatest part of Picardy, were ceded to him, some absolutely, others conditionally, as the price of his desertion from the English alliance; and finally, having been constituted the protector of Luxembourg, which belonged to his aunt, Elizabeth of Gorlitz, niece of the Emperor Sigismund, he was recognised as her successor by the estates of that duchy (1462); and at the same time, and in the same manner, he obtained the margraviate of Antwerp, and the seignury of Malines, which were frontier districts (enclaves) of the duchy of Brabant.

By these various strokes of fortune, the House of Burgundy gradually extended its sway over eleven provinces of the Netherlands, some of them German fiefs, others French; comprising the present kingdoms of Holland and Belgium, with the exception of Gueldres, Friesland, and the principality of Liege, and including on the west territory that was subsequently added to France. Such extensive dominions, embracing the seats of the most flourishing manufactures, and the principal marts of European commerce, at once placed the Duke of Burgundy in the rank of a first-class European power, and brought him into immediate rivalry with his feudal lord, the King of France. But the heterogeneous character of the prospective kingdom prevented it becoming the home of a nation, or assuming any other form than that of an accidental aggregation of states. In the Netherlands, two dissimilar races dwelt side by side, speaking totally different languages; while Burgundy itself was separated from the Netherlands by Alsace and Lorraine; so that, when

the duke travelled from one part of his dominions to another, he was obliged to pass over foreign territory. It does not appear to have been the ambition of Philip the Good to blend the wealthy and populous Lowlands, with the smiling vineyards and golden cornfields of his own Burgundy, into a monarchy, at the cost of those ruinous wars which would inevitably follow ; but rather, by his just and liberal government, to augment the prosperity and happiness of the people whom fortune had placed under his disposal. Owing to his wise policy, therefore, the people of both Burgundies, during the thirty years' peace that followed the Treaty of Arras, lived in affluence and contentment, all of which came to an abrupt termination when his warlike and ambitious son, Charles the Bold, assumed the ducal reins. The schemes of this turbulent and headstrong prince were so numerous and vast, that we are told by Comines, his chronicler, not one half of Europe would have contented him, nor would a natural life have afforded the opportunity for their completion. He sought to establish for himself an independent kingdom on the borders of France ; to erect a kingdom of the Rhine, which should command the whole navigable course of that river, and, while being composed of both Celtic and Teutonic elements, should constitute a long and massive barrier between Germany and Gaul. Such a realm would form a counterpart to that earlier Burgundian kingdom, which, leaning on the Vosges, the Jura, and the Alps, had guarded the waters of the Rhone to their confluence with the sea. Had the capacity of Charles been in any degree equal to his ambition or his courage, or the audacity and originality of his plans ; or had not an abler or craftier prince, such as Louis XI., been sitting on the French throne, there is little doubt that all which Philip Augustus and the ablest of his successors had accomplished, in consolidating the monarchy, would have been entirely undone at this crisis. Austria was

too feeble, and her finances were too complicated, to offer any barrier to the aggrandisement of so formidable a state ; indeed her poverty induced her to dispose of Alsace to the Duke of Burgundy, and thus unwillingly contribute to the growth of his dominions. But the Swiss at once took alarm, and defeated Charles in three glorious battles,* in the last of which, this Napoleon of the fifteenth century lost his life (Nancy, 1477), and there came a premature end to all his schemes. For his vast possessions descended to his only child Mary, who, being so tempting an heiress, became the victim of intrigue and the sport of competing suitors for her person and dowry. She was the undoubted heiress of her father's dominions beyond France, as well as of Flanders and Artois within that realm, since the great fiefs of the crown were descendible to females. But her right to the Duchy of Burgundy was questionable, on the plea that, being a royal appanage, it reverted to the crown in default of male heirs, which in fact was the essential element of an appanage. Louis accordingly seized upon the Duchy, together with a portion of Picardy, and then sought to secure his booty by the project of a marriage between Mary and his son Charles (afterwards Charles VIII.). But his avidity was fatal to his success, and Mary married Maximilian of Austria ; the Netherlands thus passed to the rising House of Hapsburg, and the growth of France in the direction of the Low Countries was retarded during the next two hundred years.

A second matrimonial project was equally unfortunate from the French point of view. After her death, Mary left a daughter Margaret, whom Louis sought in marriage for the Dauphin, and concluded a Treaty at Arras for that purpose (1482), in which it was arranged that the provinces of Artois and Franche-Comté should be ceded to the crown as her

* Granson, 1476 ; Morat, Nancy.

sent departments ; the Count of Flanders held four ; the Count of Vermandois two ; the Count of Boulogne one ; the Count of Champagne six ; the Duke of Burgundy three ; the Duke of Normandy five ; Brittany five ; the Count of Anjou three. Thirty-three departments south of the Loire he regards as hardly connected with the crown, since the people of Aquitaine took no part in the elevation of Hugh Capet, and long refused to acknowledge his title. The territory now covered by twenty-one other departments was dependent on the Empire of Germany.

It will thus be seen that France at this date was, what I have described it in a former paper read before this Society, "a mere union of independent principalities, whose sole bond was the nominal one of feudal allegiance." Such an agglomeration of states, differently governed, of various origin and diverse interests, could not possess any of that vital force, which, by its equal diffusion of energy and resources, is essential to the existence of a body politic. The kings of France, therefore, from the foundation of the Capet dynasty, naturally acted upon a system which was specially devised for the recovery of those possessions which the Carlovingians had lost, and restoring compactness and organisation to the monarchy. With this object in view, the French monarchs always claimed, if they did not receive, the homage and allegiance of all the inferior princes. Even while the feudal vassals were setting at nought their feudal obligations, the rules of feudal tenure were enforced, in cases where they had no original application ; and provinces which had never been bestowed as fiefs by the crown were held, on the failure of direct heirs, to have reverted to the crown. And thus, by escheat or forfeiture, by marriage or succession, often by bequest or purchase, the royal domain of the Capets was being constantly extended ; and when fiefs were once annexed to this domain, it was held as a fundamental maxim of French law, that they could never

be alienated. (*Mid. Ages*, i., 254). It is therefore evident that there was always a strong principle at work for the unification of the country — a principle which was always enhancing the power of the crown, and depressing all conflicting powers, and which ultimately incorporated all the little sovereignties that distracted the country.

The most important augmentations of the royal domain which produced this result may be enumerated under three principal epochs. *First*, that which witnessed the vigorous policy of Philip Augustus and the paternal wisdom of St. Louis; *Second*, the age of Philip the Fair; and *Third*, the period during which Louis XI. and his son Charles VIII., by their intrigues, completed the consolidation of the kingdom, and secured the monarchy from all further apprehensions of dismemberment.

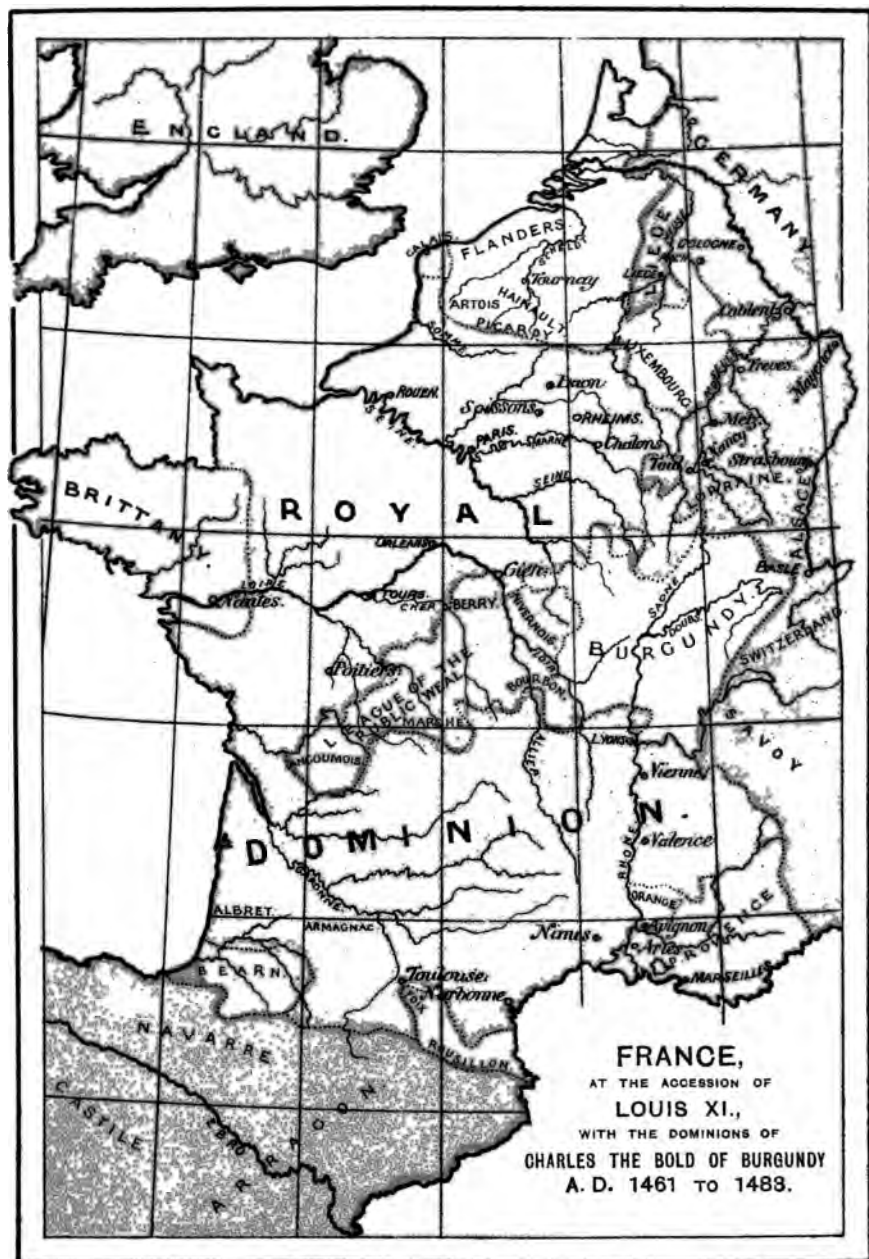
During the reigns of the earlier Capets, some small accessions of territory were made, *e.g.*, the French Vexin, and the viscounty of Bourges; but it was not before the accession of Philip Augustus that we can say the crown of France really began to recover its lost strength. This sovereign, whose ambition and military enterprise were greater than any of his predecessors from the time of Charlemagne, acquired the Vermandois and Amienois, and subsequently Artois, from the Count of Flanders (although the latter was afterwards lost again); but his greatest acquisitions were the provinces of Normandy, Maine, Anjou and Touraine, which he wrested from our own King John. The well known war against the Albigenses, which began about the same time (1208), led to further conquests. The county of Auvergne was appropriated, and the greater part of Languedoc was ceded to Louis VIII. by his cousin, the Count of Toulouse. The royal power was now able to cope single handed with all its feudatories united, and during the earlier part of the reign of Louis IX. the barons repeatedly found this out to their cost and humilia-

tion. The virtues and abilities of this sovereign contributed still further to consolidate the monarchy, by the institution of a definite code of laws, the firm and equal administration of justice, and the restitution of such lands as had been unjustly annexed to the royal domains. In his reign, the Spanish March was surrendered to the King of Arragon, on the marriage of Louis' eldest son with the daughter of that prince, but France was recompensed with substantial equivalents by the cession of Gevaudan, which had formed a part of the kingdom of Provence, and the remaining portion of the territory of Languedoc.

The next epoch includes the reigns of Philip the Bold and Philip the Fair (1276-1285-1314). Under the former sovereign, Poitou and Saintonge, which had been held by Alfonso, the brother of St. Louis, were incorporated, while the latter sovereign extended his authority over Champagne and Brie (1283), the heiress of which he had married before he came to the throne. By this transfer, as we have said before, the Dukes of Lorraine came to be vassals to the French king for certain cities which they held in Champagne. It was Philip the Fair, who, by a feudal subterfuge, obtained, for several years, possession of the Duchy of Guienne; he also acquired the countries of Angouleme and La Marche, upon a sentence of forfeiture against the reigning count, as well as the Lyonnais, which really belonged to the kingdom of Burgundy, but which now fell within the jurisdiction of the French monarch, much in the same way that Scotland would have fared had the schemes of the English Edward I. been successful.

We now come to the period of the Great French war between France and England, in which our own Edward III., in pursuit of his claim to the French crown, managed to restore to his continental dominions a small portion only of those which had been lost by his ancestor, King John. This

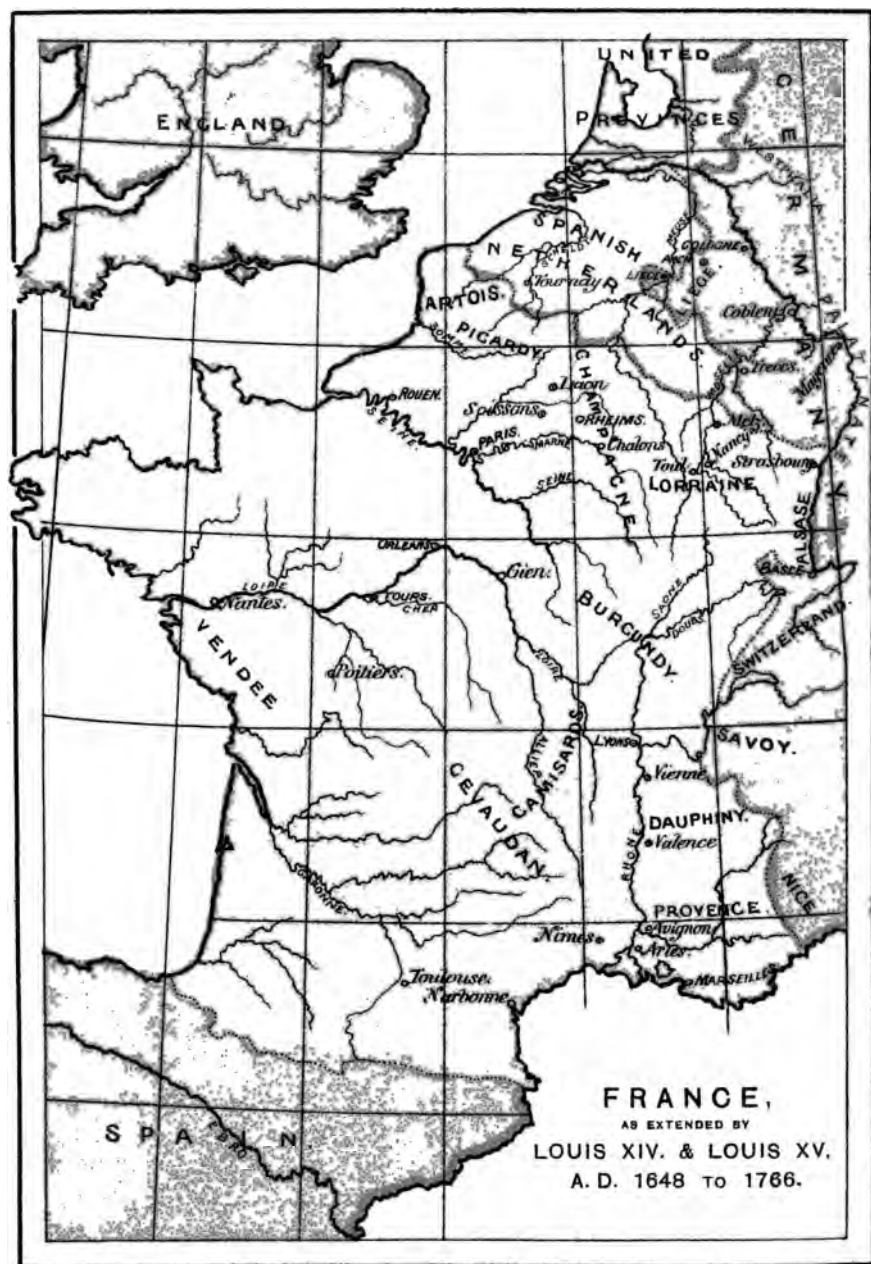




restitution, however, was but temporary, for in a few campaigns the English were deprived of all their conquests, and in a great measure of their original possessions in Guienne. During the second war with England, the crown of France was brought to the verge of ruin, chiefly through the minority of Charles VI., which left the nation without a head for nearly half a century. The contending factions of Armagnac and Orleans; the intrigues and ambition of John the Fearless, Duke of Burgundy, the only prince of the blood who displayed any energy or talent; his murder of the Duke of Orleans, which he openly avowed, because none were able to punish him, and his own murder afterwards, are some of the most prominent occurrences which preceded and prepared the way for Henry V.'s subsequent subjection of the country. Even after the expulsion of the English, and the loss of all their acquisitions except Calais, it required all the ability of Charles VII. to restore the royal authority, and bring the country out of the frightful chaos into which it had been plunged. The great nobility still possessed many feudal privileges subversive of order and impartial justice; and some of these, whose territories lay on the frontiers of the kingdom, as the houses of Foix, Albret, and Armagnac, continued to maintain a kind of semi-independence, while the Dukes of Burgundy and Brittany regarded themselves in the light of foreign princes, and potentates of equal rank with the sovereign. These seigneurs, combining with those princes of the blood who were jealous of Charles, formed that celebrated confederacy, termed the *League for the Public Weal*, which, under Louis XI., at one time threatened to entail upon the monarchy complete dismemberment. But this confederacy had too many heads; its strength was accordingly diverted in purposeless and imprudent enterprises, and its leaders were successively crushed by the prompt and relentless activity of Louis. He confiscated the duchy of Alencon;

short, openly manifested that he meant to constitute the Upper Rhine as the boundary of France. Then was formed the League of Augsburg, under the advice and leadership of the Prince of Orange (1686), who, by the Revolution of 1688, brought the whole power of England to bear against the further progress of French aggression ; and after lengthened hostilities, which involved questions of the most momentous consequence to England, ultimately succeeded in extorting from Louis the Treaty of Ryswick (1697), whose terms were less favourable to France than those of any of its predecessors. Lorraine, Treves, and the Palatinate, which had been devastated by fire and sword by Marshal Turenne, were restored to the empire ; the conquests which had been made in Catalonia and the Low Countries were surrendered, and the change of dynasty in England was acknowledged. The only advantages which Louis received were certain portions of Alsace and the town of Strasburg. After this, there were no more triumphs destined to crown the arms of France, for at the Peace of Utrecht (1714), which terminated the famous war of the Spanish Succession, Louis was compelled to forsake all prospects of realising his famous *mot*, " That the Pyrenees should cease to exist," and was forced to yield Namur, Charleroi, Luxembourg, Ypres and Newport, fortresses which he had rendered almost impregnable, to the United Provinces, as a barrier to them against all future encroachments ; while the Spanish Netherlands were formally handed over to the Empire. (It may here be noted, parenthetically, that France and Prussia first came into mutual communications by this treaty, the former agreeing to certain clauses by which she acknowledged the latter as a kingdom and power in Europe.)

One of the territories restored to the empire by the peace of Ryswick, viz., Lorraine, did not long remain within the imperial jurisdiction. Although this province had always



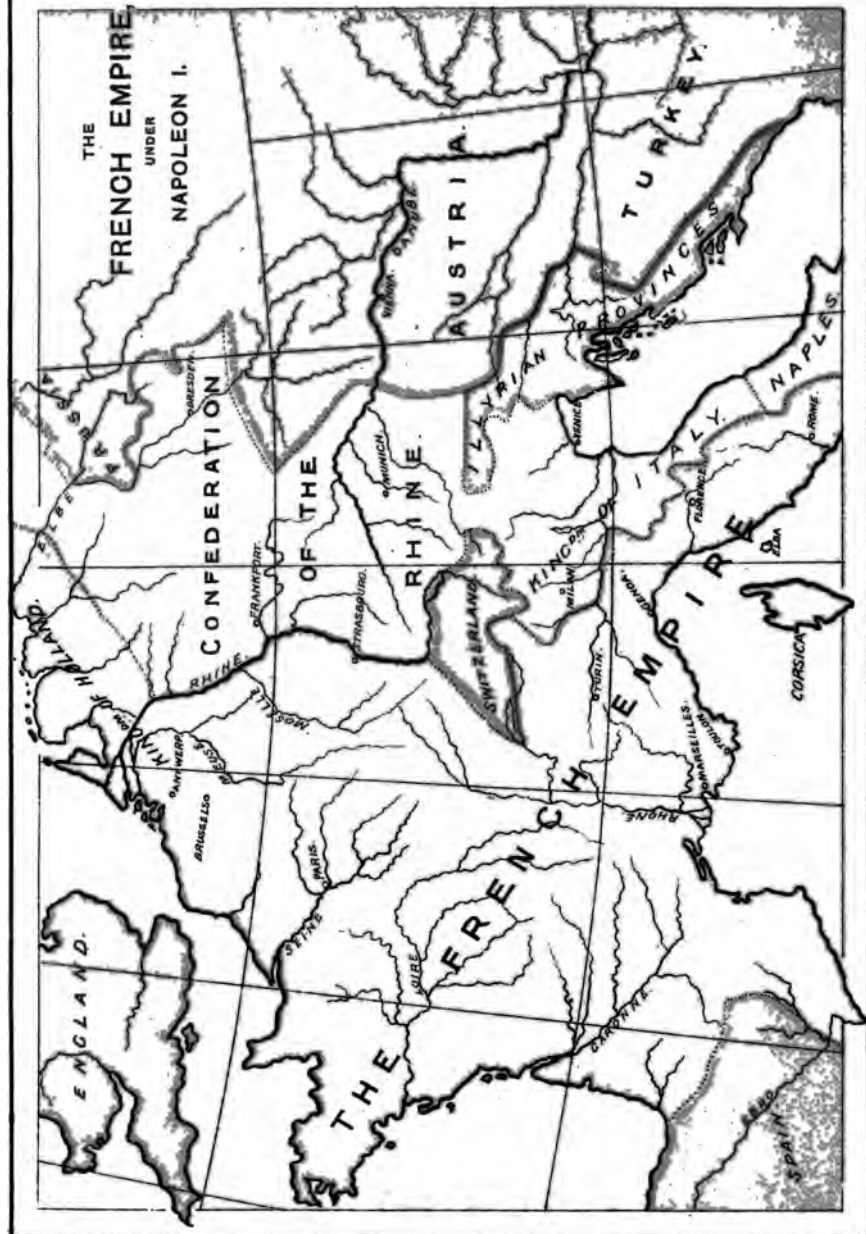


been a fief of the empire, its history was more intimately bound up with France than with Germany, and the Dukes, in their contests with Metz and the free cities, generally called in the aid of the French kings. The sympathies of the people were altogether with the French, as witness the enterprise of Joan of Arc ; the dukes were constant guests in the French court, or allies in its camp, and indeed were vassals to the French kings for certain parts of Champagne, which has already been shown. In the fifteenth century, the duchy passed to the House of Anjou, by the marriage of its heiress with René, the famous titular King of Jerusalem and Naples, and the father of our equally famous Margaret, queen of Henry VI., and was thus brought into immediate connection with the French royal family. The result of this was that in the eighteenth century the province lapsed to the French crown, on the death of Stanislaus, ex-King of Poland, whose daughter had married Louis XV., 1766. The annexation of Lorraine completed the line of land frontiers, as they existed until the outbreak of the Revolution of 1789, when a very important change was made in the order and nomenclature of the territory which had thus been welded together by so much pains and so many and various processes. That event was simply the final struggle of the nation against feudalism, and all its accompanying oppressions ; and as the division of the country into provinces, with their varying privileges, local liberties and unequal burdens, was a principal element in that system, the ancient names were abolished, and the kingdom redistributed into eighty-two departments, all of them subject to the same code of laws, and regulated absolutely by the one central authority.

Then followed the ambitious desire to incorporate within the enfranchised territory the whole of ancient Gaul, from the Rhine to the ocean, eighty per cent. of whose inhabitants were of the French race, and only eighteen per cent. of the

old Teutonic and antagonistic race. Next succeeded the gigantic scheme of Napoleon I. to recreate, by a system of federated kingdoms, of which he should be the supreme arbiter, and France the imperial mistress, the vast dominion of Charlemagne. The first of these objects, viz., the recovery of the natural frontiers, was achieved by the wars of 1792 and 1797, and secured by the respective treaties of Campo Formio, Rastadt and Luneville. The facility with which this was accomplished no doubt encouraged the Emperor Napoleon to expand the dominion still further, until the greatest part of Italy and Germany were absorbed, either totally, or as vassals and forced allies, like Spain, Naples, and the kingdoms which formed the Confederation of the Rhine. The institution of the obnoxious Continental System, and its arbitrary enforcement upon the only independent states which remained in Europe, brought about that formidable coalition which ultimately broke this unwieldy empire into fragments, and by the treaties of Fontainebleau and Vienna (1814 and 1815), reduced the French monarchy to its dimensions as they existed before the revolutionary wars broke out. These continued undisturbed for the next fifty years, until Nice and Savoy were annexed (1859), by a monarch whose elevation to power and the imperial throne was a direct breach of the second of the above treaties. To this we must now add a change of another character, unexampled in the history of France, the entire loss of her idolised Rhine frontier by the cession of Alsace, after an uninterrupted possession thereof of two hundred years. This event is not even yet *un fait accompli*, and, being still within the region of contemporary political history, cannot be discussed here ; but it may be appropriate to remark, in conclusion, that such a disaster completely cripples France, whether for attack or defence, when arrayed front to front with her great Teuton foe. Her remaining frontier on the north-east is naturally weak, since

THE
FRENCH EMPIRE,
UNDER
NAPOLEON I.



the boundary line is perpendicularly intersected by rivers which are separated from each other only by low and insignificant hills, and thus serve to open up natural roads by which the country may be easily penetrated. This district accordingly has ever been the theatre of war between France and her German neighbours, and that side by which all invasions of her territory have been most successfully accomplished. But the line, naturally so defective, was made artificially strong, though far from invulnerable, by Louis XIV., who employed the splendid genius of Vauban in erecting that great belt of fortresses, from Dunkirk to the Rhine, which has been the admiration and the study of military men ever since. Hence, when Napoleon was driven to bay in 1815, he sought the plains of Belgium, with these formidable strongholds on his flanks and rear, as his chosen lists within which the last battle for empire should be lost or won.

A PYTHAGOREAN OF THE SEVENTEENTH CENTURY.

IN that very amusing miscellany of letters, first published in 1692, under the title of *The Post-Boy Robb'd of his Mail: or, the Pacquet Broke Open*, the sixty-sixth letter of the second volume is dated from Cambridge, on the 16th June, 1692, and professes to be written by one S. Rogers "to Mr. Lancelot, at his house in Broad-street, London, giving an exact, tho' short, and impartial Account of the Several Sects of Christianity in the World, especially those in England." The letter, which is long and curious, enumerates and describes no less than forty-five different orders of religious opinion; and of these, the fortieth on the list is the sect of Tryonists, who are thus characterised.

"*Tryonists*, are such as forbid eating of Flesh, Fish, or anything that is kill'd, as contrary to Scripture (tho the Opinion derives it self from the Banians of the *East-Indies*, and the other Sects of Pythagoreans, or those that hold the Transmigration of Souls) and the Command of God, and Example of Christ, and his Apostles. That killing of Creatures, is from the fierce Wrath of God, hellish Nature in Man, and a fruit of Hell; they being as it were our Brethren and Fellow-Creatures, and therefore 'tis Oppression in the fierce Wrath. *Adam* was to eat only of e'ry Herb of the Field, and of e'ry Fruit of the Trees; killing, entring the World after the Fall, and not permitted till after the Flood. From this same wrathful Principle proceeds Rancor, Strife, Contention, and speaking Evil of any other Creatures.

That eating of Flesh, is the Doctrine of Devils, qualifies men to be sordid, surly, and Soldiers, Hunters, Pirates, Tories, and such as wou'd have the bestial Nature fortify'd; that they might act like Lions, and Devils, over their own kind as well as over all other Creatures."*

It will be seen that S. Rogers does not affect any violent love for Tories, though, no doubt, he means us to take the word Tory in its earlier sense of marauder, and not as the designation of a political party, an application, however, which it had already begun to bear.†

At the time when this description of the Tryonists was penned, the founder of the sect, THOMAS TRYON, was still living at Hackney, a prosperous London merchant, of the age of fifty-eight; and it is to him and to his numerous writings that we must turn for further elucidation of the origin and the principles of the community which was once called by his name. Rogers' account is, indeed, the only authority in which we shall be able to discover the Tryonists spoken of as an actually existing religious body, known as such among men, and one is strongly inclined to doubt whether their organisation ever took shape, except upon paper. Still the life of the founder is sufficiently interesting, and the scheme of the society which he created, or attempted to create, is sufficiently curious to justify one, perhaps, in bringing them both, into notice.

At the outset of the narrative, it must be confessed, a considerable disappointment awaits us. In his own lifetime Tryon had prepared for the press what was supposed to be a complete autobiography, and had indicated the place in which it was deposited, in order to its publication after his

* *Post-Boy*, 2nd edition, 1706, p. 430 [230].

† The original source of the latter part of this description is a passage in Tryon's *Way to Health*, 1683, p. 399, where the word is not *Tories* but *Moss-Troopers*, and I suspect the good S. Rogers was not without a sense of the political humour of the change when he made it.

death. His will contains the following direction : "Whereas I have left some memorialls of my birth and life, together with some orders and rules of life, I doe hereby desire that my said loving wife will get them printed and bound, and the charge paid out of my estate." But when the old man died his friends sought in vain for the promised memoirs. They "were not to be found in the place where he assigned them to be." "We must here acknowledge," write his Editors, "that those memoirs here published are not what he intended for the press." Possibly the survivors expected to find a more full and finished autobiography than Tryon actually had leisure or inclination to complete. At any rate, eighteen months' delay and search failed to bring to light anything of the kind except a rough draft, by way of introduction to an account of himself, extending no further than his forty-eighth year, the period at which he began life as an author. This draft, however, in the non-appearance of the fuller account, was printed in 1705, and published (under the title, *Some Memoirs of the Life of Mr. Tho. Tryon, Late of London, Merchant*) by T. Sowle, the well-known Quaker bookseller, "in White-Hart-Court, in Gracious-Street." The unfinished autobiography fills ninety duodecimo pages, of very large type, and is supplemented by an account of the author's death, and the Rules and Orders of his Society, which swell the little volume to one hundred and sixty-two pages.* His epitaph and a list of his works are added at the end. The memoirs, as far as they go, are composed in a pleasing strain of business-like information and quaint moralising, not altogether unlike the style of Benjamin Franklin, whom, in other respects, Tryon resembled, though endued with a strong flavour of mystical piety, to which *Poor Richard* with all his virtues was somewhat of a stranger.

* The pages are regularly numbered from 1 to 34, and then, without any apparent reason, the numbers begin again, and run from 1 to 128, after which there are two leaves unpagged.

In common with most autobiographers, Thomas Tryon thinks it necessary to preface his attempt with a certain amount of apology. "I may probably," he feels, "run the hazard of censure by setting down these brief Notes of my life, it being not unlikely that some will be apt to attribute it to pride or vanity, and that others may say I had little else to do when I thought of troubling the world with my small private concerns." Not deterred, however, by the danger of his motives being thus misconstrued, and not relying solely upon "the sundry precedents of this nature, both in the past and present ages," Tryon comes forward with three good and pious reasons, which justify him, he thinks, in proceeding to pen some account of his career. He wishes, in short, to acknowledge the Almighty's goodness; to engage himself in humble and serious reflections thereon; and to be the means of encouraging others in good and humble ways. Four of the little pages being filled up with this justification, our author begins his story, no further concerning himself, "how such may cavil, who receive with the left hand what is offered with the right." Let us try, for our parts, to take honest Thomas by the right hand, and, receiving his plain account of himself pretty much in his own simple language, do our best to enjoy its free and sturdy spirit. The spelling and punctuation it seems proper to modernise, though both are unusually good for their time.

"The place of my birth was in Gloucestershire, a county for the useful woollen manufacture, and an industrious sort of people, giving place to few in England. The time, according to our common computation, in the year 1634, on the 6th September, a little before eleven of the clock in the forenoon, at a village called Bibury."* The situation of this

* There appears to be no entry of the baptism of Thomas Tryon in the Bibury Register, and one is somewhat perplexed to find that, under the date 25th September, 1634 (nineteen days after the date which he assigns as that of his own birth), there is an entry in the Baptismal Register relating to an "Edward Trian

village, in which lived his father and mother, William and Rebecca Tryon, is about six miles north-east of Cirencester. His father was "by trade a tyler and plaisterer; an honest, sober man of good reputation, but, having many children, was forced to bring them all to work betimes." Of this large family, no traces remain, if we except the mention in our author's will of his sister Deborah Westmoccott, of Bibury (to whom he left an annuity of £12 per annum), and two nephews, Rowland and William Tryon, and their children.* It is, however, interesting to know that the American family of Sherman, to which the celebrated General Sherman belongs, claims a descent from the Tryons.

"About five years old," he goes on to say, "I was put to school, but being addicted to play after the example of my young schoolfellows, I scarcely learned to distinguish my letters before I was taken away to work for my living." His scholarship seems indeed to have been of very short duration, and probably lasted only a few months. In less than three years after his being first sent to school, we find him already hard at work for his livelihood, taking to his employment with more relish than he seems at the outset to have shown for his letters.

The early drawing of his thought toward mystical contemplations, is marked by two dreams, the remembrance of which, though they occurred when he was a very young child, was cherished by him throughout a long and active life. "Being about six years of age," he says, "I had a dream, wherein it pleased God to shew me the Kingdom of Love, and the Kingdom of Darkness. I thought that God appeared

filius Willielmi Trian Sept 25 1634." Baptizatus seems to be left out in this entry. Tryon, in this Register, is always spelled Trian; compare the variation in the spelling of the name of John Bunyan, which, in the Register of Elstow, is nearly always spelled Bonion.

* The will mentions also a kinsman, John Tryon, a tailor, and his sister Phillis, and a kinswoman named Barbarah Clissell.

to me, and talked with me face to face, in a very friendly and loving manner." It would not be reasonable to doubt that the strong impression here referred to was actually experienced by the child, though the language which in his manhood he employs for the purpose of recording it is such as he must almost certainly have learned at a date subsequent to his seventh year. The contrasted terms, Kingdom of Love and Kingdom of Darkness, and the phrase which speaks of God as conversing with him "in a very friendly and loving manner," manifestly betray their connection with his later studies. The dream is the dream of Thomas Tryon, but the words are the words of Jacob Behmen.

"Not long after," he tells us, "I had another dream, wherein methought the Devil stood before me and scourged me. It may be thought trivial by some that I here relate the dreams, as it were of my infancy. To which I shall only say, those dreams made so firm an impression on my mind, as neither time nor the cares and business of this world could obliterate; but the remembrance thereof has, from time to time, been both pleasant and awful, affording me great comfort and satisfaction, having, as it were, pointed out to me the work my Great Creator ordained me for." After this not altogether unmeaning digression to the reveries of the child, we pass onward to take up the thread of those severer enterprises which began to engage the honest ambition of the growing youth.

"The first work my father put me to was spinning and carding, wherein I was so industrious, and grew so expert, that at eight years of age I could spin four pound a day, which came to two shillings a week. This work I followed close, till I was ten or eleven years old. But then I began to be weary of the wheel, and was strongly inclined to betake myself to the flocks; and on Sundays, or Sabbath days as we usually call them, I would voluntarily keep sheep for a penny

or twopence a day, whilst the shepherd went to church, or to some feast or cudgel-playing, or other merry meeting, as they called it." Here is a curious peep into the country customs of the England of that day. In Gloucestershire, which is so thickly studded with churches that the saying runs,—As sure as God's in Gloster: the habits of Sunday afternoon liberty and amusement were such as would have fairly rejoiced the shallow hearts of those two monarchs, Scotchmen both, who, in 1618 and 1633, successively promulgated the famous Book of Sports.

"This," continues Tryon, "was my practice for two or three years, though I had wrought hard all the week before at my spinning trade. About twelve or thirteen years of age, my father would have me go along with him to learn his trade, which, though much contrary to my inclinations, yet I obeyed; but my mind did still run after the flocks and folds, and I was frequently persuading him to buy some sheep, no employment pleasing me then like that of a shepherd, as being not only one of the most antient and useful occupations, but the most innocent and contemplative, as also the most healthful, because of the constant motion in the open air."

The lad's importunity prevailed at last, and overcame the unwillingness of his father, who bought a small number of sheep, to the management whereof Thomas betook himself with much delight and care. And now his mind misgave him, that he was thirteen years of age, and could neither read nor write. He bought, therefore, a primer, and got now one, now another, to teach him to spell, as best they could with their own imperfect education. "In a little time, having learned to read competently well, I was anxious," says Tryon, "to learn to write, but was at a great loss for a master, none of my fellow-shepherds being able to teach me. At last I bethought myself of a lame young man who taught some poor

people's children to read and write ; and having by this time got two sheep of my own, I applied myself to him, and agreed with him to give him one of my sheep to teach me to make the letters and join them together."

Thus, persevering and industrious, he went on till his eighteenth year (1651), when he "began to grow weary of shepherdizing, and had an earnest desire to travel, but knew not how to accomplish it." It was not long, however, before he found an opportunity of getting up to London, with his little fortune of £3, saved out of the management of his flock. Here he at once, with his father's full consent and approval, bound himself apprentice to a castor-maker [hatter], at Bridewell Dock, near Fleet Street.

During this apprenticeship, his first definite religious experiences began. His master was "an honest, sober man, one of those called Anabaptists." After he had been with him about two years, Tryon himself not unnaturally yielded to the influences of the household, and, in 1654, "was baptised after their way, and admitted into a congregation among them." He "continued in that opinion about three years," mightily addicted all the while to reading and study, and, though then engaged in a laborious trade, so intent on self-improvement as to abridge himself for that purpose of sleep and rest. From five or six o'clock in the morning till ten or eleven at night are long hours of labour, yet this earnest London apprentice would frequently, after all this was over, sit up two or three hours reading. Lest we should be inclined to tax his employer with undue severity in exacting so heavy a daily task, Tryon is careful to inform us that a portion of his work was the voluntary occupation of his overtime, for the sake of the five, six, or seven shillings a week, which formed his hard-earned pocket-money, to be laid out on books and tutors. So, too, he would work while others played, at Easter, Whitsuntide, or Christmas. There

is a vein of character here which reminds us of William Cobbett's dogged perseverance, and mixture of mental culture with manual labour.

Tryon's studies at this time appear in singular contrast, by their unpractical character, with the course of his eminently practical and business-like method of procuring the means which should pay for them. "I was then," says he, "upon astrology; a science too rashly decried by some, who consider not the subordinate administration of the Almighty by those illuminated powers of the celestial regions; nor discern their operations in nature, and influences on the animal life in the complexions of men and things, and in the generation and preservation thereof; whilst others abuse it as grossly, making it subservient to their own designs of legerdemain and cheat. But I cannot therefore hold it unlawful or vain to study astrology, any more than to study the art of medicine, improperly called physic, for physic implies the whole study of nature; and, therefore, astrology is included therein as much as the knowledge of diseases and methods of curing them.

"By astrology, therefore, I mean not the fraudulent way of telling fortunes, &c., by setting Figures of the Heavens, but the method of God's government in Nature, and administration of the world." Nevertheless, Tryon proceeds to express his conviction that much may even be discovered by the astrological "scheme of a person's nativity, when the true time of birth is obtained," and appeals, in confirmation, to the calculation of his own nativity, which was to be prefixed to his memoirs. This, however, is lost.

The great benefit which he professes to have derived from this study he places in the fact that it enabled him "in some measure to discern the complexion and qualities of animals, minerals, and vegetations. No judicious man," he says, "can deny the influence of celestial on inferior bodies;

and, therefore, he that is most knowing in their natures and operations, distinguishes best the natures and qualities of the things of this world, and likewise best understands the human nature and himself. For there is an astrology within man, as well as without him. A microsmical sun and moon, and all the rest of the planets we carry about us, *i.e.*, the qualities of our own natures correspond with, and are derived from, the seven grand Qualities or glorious Governors of the great world. Astrology, therefore, conducing so much to the knowledge of ourselves and our Creator in all his glorious works, is a singular advantage to the sober and well-minded, and ought no more to be condemned because of the common abuse of it, than religion ought, because it is so commonly perverted to superstition, or made a cloak to hypocrisy and knavery."

Such are the musings of Tryon, in middle age, on the pet studies of his boyhood. An early turn of the studious mind in a particular direction will always be found to influence more or less all the thinking of the after life; and especially when, as in this case, there is a keen hunger for knowledge, and no original culture, nor any ready means of satisfying the intellectual craving, the first food offered to the gaping mind, be it husks or good grain, will be enjoyed, not with the light taste of passing fancy, but with all the earnestness of real appetite, and will pass into the very structure of the mental constitution.

Along with this his first love, Astrology, Tryon spent some time in studying books of physic, and several other natural sciences and arts. Thus spending his time, employed at hard labour during the day, and occupied great part of the night in study, he arrived at twenty-three years of age.

About this time, that is in 1657, there came over his spirit a strong conviction, which seemed to him to have been

presaged by the tenor of his childish dreams. His period of church communion ended; he broke with the Anabaptists. Yet he was far from returning to the church of his fathers, or conforming to the doctrines of any existing sect. England swarmed with a numerous host of sectaries, who basked their little day in the favourable rays of the liberal protectorate of the mighty Oliver. Surely among them all, this man, whatever the eccentricity of his opinions, or the individuality of his religious wants, might have found men who saw things from his point of view, sympathised with his needs and his difficulties, with whom he might have enjoyed that fellowship in religious faith and observance which every form of piety demands. And so, to a certain extent, he might. There was already in existence a set of men whose minds were leaning toward the direction in which Tryon was going; men who puzzled themselves about what they called the geniture of the world; who saw all qualities and principles in external nature derived from qualities and principles in the hidden life of the Creator; to whom man was on the one side a mirror of the outward creation, on the other a compound of those inward qualities which cause the creation to be; who valued highly books of astrology, and all books which professed to furnish a key to open the correspondence between the outward and the inward worlds. Those who were entranced by these and similar notions, Children of the New Birth, as they sometimes called themselves, Visionarists, Revelation-men, and (with a true intelligence of their origin) Behmenists, as their critics entitled them, might without difficulty have afforded to Tryon, on his contemplative side, a spiritual home among spiritual kindred. But Tryon had this peculiarity in his constitution, which marks him off with a difference from all other votaries of those mystical views which were fostered in England, among congenial minds, by the perusal of the crabbed volumes of Jacob Behmen.

Tryon, when he was most a visionary, was still a man of practice. Contemplation was the joy of his soul; but mere meditation, divorced from action, was but half the satisfaction of his nature.

The English Behmenists were, for the most part, only visionaries. They mused; they met together; they circulated the works of their idol; they printed somewhat incoherent productions of their own; but neither in the direction of thought or of action did they take any serious steps towards effecting a reformation of the age; nor did they even impose any rigid restrictions in either respect upon themselves. Thus they were in danger of passing over intellectually into a pure pantheism, and on the ethical side were in peril of degenerating into the deplorable license which had proved fatal to the Societies of the Ranters. Mentally and morally, if the truth must be confessed, their fibres were somewhat loose. Our old friend, Lodowicke Muggleton, it will be remembered, who found himself at one time on the eve of being entangled in their toils (which had actually held captive for a season his fellow-witness, John Reeve), made good his escape from their influence and example by boldly running to the other extreme of opinion, and embraced a solid hard-and-fast scheme of theological dogma, at the bidding, as he believed, of the Personal God himself, speaking out of heaven to John Reeve. One who, if we set aside the prophetic claims of either, and compare them simply as men, was a much greater man than Muggleton, George Fox, by the powerful impress of his orderly nature, and his wonderful faculty for arrangement and command, kept his followers from the mischief of that tendency to laxity and disorganisation which was the inevitable temptation of their early days. Fox succeeded in regulating his community to such a pattern of order and discipline as could never have been foreseen or credited by those who witnessed

its uncouth and turbulent rise out of the discordant elements furnished by the Anabaptist and Ranter Societies. With the triumph of acquired Quaker proprieties vanished, however, some of the most marked of the original Quaker tendencies. Who now would suspect the Society of Friends of a pantheistic leaning? With equal justice, one might accuse them to-day of a secret longing to rush through the streets of London or Bristol as of old, unclad, denouncing woes. In how many of their libraries could a volume of Jacob Behmen be discovered? One would as soon charge them with harbouring occult notions respecting the influences of the stars above, or of the virtues of plants, metals, and minerals below. Calm discipline has subdued all the fierce heats of this English mystic fire.

Tryon, a smaller man than either Fox or Muggleton, unlike the latter, felt no subsequent repulsion against the inherent principles of the mystical theosophy; nor was he by nature, like the former, a leader of men, who could reduce into obedience, by the force of his character, the straying tendencies of his associates. He remained, therefore, a mystic, and almost a solitary. He did not join the Quakers, though they valued his books, and though he employed their publishers. The peculiarity of his case is that he was saved in his mysticism from the possible danger of moral degeneration by the maintenance of a very severe and stringent habit of life, which he constantly observed in his own person, and as constantly recommended to his friends and to the world, even if he had not that power and command of men which he may have desired as a means of enforcing its adoption. The origin of this ascetic rule of his shall be told in his own words.

About 1657—he was then twenty-three years of age—
“the blessed day-star of the Lord began to arise and shine
in my heart and soul, and the Voice of Wisdom continually

and most powerfully called upon me for separation and self-denial; and through his great mercy I was enabled to obey, retrenching many vanities, and flying all intemperance. For then I betook myself to water only for drink, and forbore eating any kind of flesh or fish, confining myself to an abstemious self-denying life. My drink was only water, and food only bread and some fruit, and that but once a day for some time. But, afterwards, I had more liberty given me by my guide, Wisdom, viz., to eat butter and cheese. My clothing was mean and thin, for in all things self-denial was now become my real business. This strict life I continued about a year or more, and then, through some inward temptation of the Evil Genius, and persuasion of acquaintance, I fell to eat flesh and drink strong drink again, but not immoderately, and continued so doing about half-a-year, in which time I was often checked and troubled for my revolt, and fell into an indisposition of body. The Voice of Wisdom and my Good Genius was still calling upon me, and prompting me to return to my abstemious way of living; and I no sooner obeyed, but I was restored to my perfect health.

“About two years after, I made a second revolt, but through the great mercy of God, in six months was fully reestablished and fixed in my former abstemious innocent way of living, contenting myself with herbs, fruits, grains, eggs, butter, and cheese, for food, and pure water for drink. But possibly some may be apt here to interpose, and ask, Why all this singularity? And [they may say] that it is ridiculous to run retrograde from all our neighbours, and [inquire] What advantage found you in it? To this I answer, that I found this abstemious clean way of living in innocency mightily to fit and qualify me for the contemplation of our great Creator, and of his wonderful works in nature; for by thoroughly cleansing the outward court of the terrestrial nature, it opens the window of the inward senses of the

soul." This answer is intelligible, but Tryon goes on to declare the benefits of a vegetarian diet in terms to which only those who are familiar with Jacob Behmen's theosophy can attach a meaning. It gives power to the Voice of Wisdom "over the Adamical Father's nature to tincture the jarring, fierce, astringent forms thereof by its pure glance of Light and Love. And if the will, which hath the casting voice, submit itself to this holy Light, or Son's property, then the tumultuous envious spirit is vanquished, and there is a blessed union and harmonious correspondency amongst all the properties of the soul; and when this state is known, experienced, and witnessed unto, there is, as it were, a new earth and a new heaven, new senses, and a new understanding." This is the language, doubtless, of a visionary; and in particular, of one trained and accustomed to see, even in those affairs and arrangements of the universe which seem to a casual eye most trivial and inconsequential, the perpetual and momentous conflict of eternal principles. Few visionaries, however, have been found to obey so closely, as did Tryon, the dictates of a presumed invisible guide, when it led them by a way so averse from the lines of customary appetite and inclination as the austere temperance which has been described.

Tryon pretends to no specialty of guidance in the matter of this rule of living which he prescribed to himself. The guide he followed is really, he contends, leading all men by secret monitions, which they seldom obey. "The Voice of Wisdom," he declares, in a strain of mystical fervour, "if it be hearkened unto, will never leave pruning and dressing old Adam's garden, until it be new formed into virtue and the fear of the Lord; it will suffer no superfluous branches to grow, but will cut them off in the bud; and inform man, in all the particulars of his life, which is right and the contrary. It will teach him what foods and drinks are most profitable,

both in quantity and quality; it will direct him when to speak, and when to be silent; what words are proper, and what not; what garments are most useful and most beneficial to nature; as also of houses, furniture, beds, labour, exercise and, in a word, all circumstances belonging to the outward and inward man; for it will lead him by degrees from one thing to another, and teach him the steps of Wisdom as he becomes capable and obedient."

This is a very curious passage, as showing the shape which the doctrine of an inner light assumed when it had become the familiar guest of a highly practical intelligence. In one respect, Tryon's new-found dependence upon a spiritual monitor contributed to the sobering of his research. For, from the study of astrology, he had been led on to the pursuit of alchemy—or, as he terms it, the chymical or spagyric art,—and had been puzzling himself with books which endeavoured to penetrate into the mystery of the transmutation of metals, and to point the way to the discovery of the grand elixir, or universal medicine. Now, however, he dismissed these abstruse researches from his mind, relying for health, for pleasure, and for instruction in all necessary wisdom, upon the inward oracle alone.

When he had arrived at the age of seven-and-twenty, Tryon married, in the year 1661, his wife Susanna, to whom he had for some years been betrothed. He describes her as "a sober young woman," but of a contrary sentiment to his own, as to diet and method of living. "The chief inducement to the match," he candidly confesses, "after my own youthful inclinations and affections, was the promise I had made her before I had taken upon me this course of separation and self-denial, which promise I resolved to perform, thinking it highly unlawful to violate any contract of that nature; but withal steadfastly resolved that no artifice or courteous insinuation should pervert me from my innocent way of living."

Two years after his marriage, business led him to make the voyage to Barbadoes, where he spent a year. His next expedition was to Holland; but, his errand there not succeeding to his expectation, he returned to Barbadoes, and remained four years, pushing his business, or, as he terms it, "making beavers to success," living a part of the time in the greatest austerity, allowing himself only bread and water as his diet. He came back to England in 1662, and then finally settled down in his native land, prosperous in his affairs in the city, and enjoying, in his home at Hackney, the society of his wife and his rising family of two sons and three daughters.

It is interesting to learn that, amid the cares of his vocation, and the sublime contemplations of his vacant hours, he was so far sensible of the value of polite and gentle accomplishments, that at five-and-thirty years of age he attempted to gain a knowledge of music. Having, at least in his own estimation, a natural propensity thereto, he "made a pretty good progress on the bass-viol," selecting his opportunities for practising sometimes at night, sometimes in the early morning, as he could best find leisure moments, or when he most needed refreshment after the fatigues of his business. Music, whether they have themselves exercised the art or no, has always had peculiar charms for the mystics; much of their phraseology is borrowed from its terms, many even of their conceptions are regulated by its suggestions. In practising music, Tryon no doubt felt himself not so much attaining proficiency in a gentlemanly art and accomplishment, as bringing his mind nearer to the order and melody of things, and attuning his spirit to the harmonies of the universe, "there being no material art performed by man that so nearly imitates the blest angels and celestial powers above as this."*

Not till he had attained his forty-eighth year did Tryon

* *Tryon's Letters*, 1700, p. 174.

feel conscious of any inward instigation to write and publish his convictions to the world. But the impression that such was his duty was so urgent, when at last it came, that without delay he obeyed it, and became an author. His object in so doing was, as he himself informs us, to recommend to the world temperance, cleanness, and innocency of living; to admonish mankind against violence, oppression, and cruelty, either to their own kind or any inferior creatures; to give them Wisdom's bill of fare, what foods and drinks are most proper for preserving the health and cheerfulness both of body and mind; to write down several mysteries concerning God and his government in the methods of nature, which he had not by hearsay, nor borrowed from other authors, but as they were impressed upon him by his good Genius.*

With this enumeration of his motives as an author ends that fragment of his autobiography which is all that his executors were able to recover. Of his personal history, subsequently to 1682, we have only three slight memorials. Of these, the first is an engraving, prefixed to the *Knowledge of a Man's Self*, 1703, and possibly taken from one of the two portraits bequeathed in Tryon's will to his wife and daughter respectively. It represents a man of somewhat severe aspect, in a full-bottomed wig, loose robe, and ample white neckerchief flowing down to his breast. It is inscribed, *Tho: Tryon, Gent. Aetat. 69, 1703*; contains beneath the portrait, within an oval border resembling a seal in shape and size, the Tryon shield of arms,† suspended from the stump of a tree, and bears the engraver's name, R. White, 1703. More recently, apparently within the present century, it has been poorly copied by R. Grave.‡

* *Memoirs*, pp. 54-55.

† *Argent a fesse embattled between six estoiles or.* The crest is not given.

‡ The writer has a copy of another engraving, uninscribed, but said to be a likeness of Tryon. This represents a man of plumper face, larger and brighter eye, and more smiling appearance. It may, however, be taken from the other painting mentioned in the will, and have been like him when less advanced in life.

The testimony of this engraved portrait tallies pretty exactly with that furnished by our next source of information. This is the account of Tryon by his editors, who, in furnishing the narrative of his death, describe him, probably in his last years, as "of middle stature; a little stooping, or incurvated; slender, but well compacted; active and nimble; his eyes small, a little sinking into his head; his aspect easily discovering something extraordinary; his air cheerful, lively, and brisk, but grave, with something of austerity, though he was of the easiest access; . . . of no strong make, yet, through his great temperance, regularity, and prudent management of himself, . . . capable of any fatigue, even to his last illness; . . . a man of unwearied application, . . . never idle, but of such despatch that, though Providence had allotted him as great a multiplicity of business as perhaps to any one of his contemporaries, yet, without any neglect thereof, he found leisure to make such a search into nature, that perhaps few of this age equalled him therein. . . . In his conversation he was easy, cheerful, and free, but always serious, rarely or never laughing, never using any frothy, vain, lewd talking, jesting or levity; using no sports or pastimes as they are called; the contemplation of our great Creator and his works, music, or the like, taking up all the interval of business. He was a true father in his family, and to all allied to him." And thus his observant editors glide on from descriptive detail to high panegyric, till they close with the admiring question—"What more can be needful, reader, but that thou imitatest him? For where canst thou find a better pattern?" Of the latter years of this good man no anecdotes have descended to us in this supplement to his memoirs; we are only told of his death, which was caused by strangury, and occurred on the 21st August, 1703, at which time he had attained the age of sixty-nine years, wanting sixteen days.

The sole remaining source of information is furnished by Tryon's Will, dated 3rd May, 1703, which proves him to have been a man of some substance at the time of his death, able to leave house property to his surviving daughters, Rebecca married to John Owen, and Elizabeth married to Richard Wilkinson,* besides legacies to various relations, and several benefactions to the poor. For his funeral he leaves particular directions. "My burial I desire may be ordered by my wife, and that noe rings, wine, or the like be given thereat, but instead thereof, I give the Poore of the Parish where I shall be buryed twenty pounds, to be paid on the day of my buriall, and to be disposed of as my Executors shall direct." And again, "I do hereby will and require my Executors not to have my funerall ordered or managed by any Undertakers, or to have any of the like method used at the same, I never having approved of such things, and have published my thoughts against them."

The series of publications which Tryon issued, with the benevolent objects enumerated a few paragraphs back, opens in 1683 with a treatise, the lengthy title of which may be thus abridged: *The Way to Health, Long Life and Happiness; or a Discourse of Temperance, . . . communicated to the world for a general good, by Philotheos Physiologus*. The publisher was Andrew Sowle, at the Crooket-Billet, in Holloway-Lane, near Shoreditch. In the second edition (1691) the author's name is revealed, and the work purports to be by Thomas Tryon, Student in Physick. In this work, the several chapters resemble rather a series of independent tracts, than the parts of a connected treatise. They seem to have been written at various times, or may even, like some of Tryon's later collections of tracts, have been separately

* These are the only children mentioned in the Will. Rebecca Owen had a number of children, one of whom, Susannah, was married to Samuel Stable, a man apparently well-to-do.

printed before they appeared together. Hence the author's defence of tautology in his dedication to the reader is by no means uncalled for. A mystical chapter or treatise begins the book. It is headed, *A description of the four grand qualities whence the four complexions proceed. How every man may know his own complexion; also of beasts and herbs, and to what virtues, vices, and diseases each of them are [is] most subject; and what food is most agreeable to persons of every constitution.* The second chapter is *On the excellency of temperance, the knowledge of a man's self, and the mighty benefits of abstinence and sobriety, which prepare the body to be the temple of the Lord.* The third chapter presents *A discourse of the several sorts of flesh.* The fourth chapter treats of *The proper and most natural way of preparing flesh and other food.* The fifth chapter is busied about *The seasons of the year in which most people are liable to diseases and mortality; and the reasons why so many are sick and die more at one time than another, &c.* The sixth chapter discourses *Of water, ale, beer, and tobacco. To which is added, the consideration of clothing, houses, and beds, &c.* This may suffice to give some idea of the varied contents of the twenty-one chapters which make up this singular publication.

The peculiarities of Tryon's philosophy come out in his discussion of every subject he handles, but are more especially marked in the fourteenth chapter, which is entitled, *Of flesh, and its operation on the body and mind: that the common eating thereof does awaken the wrathful nature in mankind, &c.* This persuasion constitutes the secret motive of his rigid system of dieting. Each kind of food, according to Tryon, exerts a distinct force of spiritual as well as of material nourishment, and gives sustenance and life to some principle of the soul. By eating the flesh of animals, man assimilates himself to the animal nature; nay, even the

anger and terror and struggle in which the dumb creatures surrender their lives to the butchers' axe or knife is introduced into the souls of those who feed on their carcasses. This, indeed, is no new or original theory with Tryon. So far as we know anything of the ground of the restrictions which Pythagoras imposed on his followers, it was distinctly the reason of his vegetarian diet. It was not on account of the material qualities which they possessed, so much as from the fear of mental qualities which they might entail and engender, that Pythagoras forbade the use of animal food.

Tryon's tracts on diet and household management are very many; but the substance of them all is foreshadowed in his first work on the *Way to Health*. It is noteworthy, as a proof of his sincere and unprejudiced desire for the improvement of his countrymen, that, though himself not only a vegetarian but a strict tee-totaller, he wrote a treatise on the *Art of Brewing*, and printed directions for making gooseberry and currant wines. His praiseworthy object evidently was, where he could not succeed in establishing the rigour which he practised himself, at all events to introduce mild and wholesome stimulants, in place of the arrack, rum, &c., the too frequent drinking of which he denounces as the prevalent vice of the lower orders, a vice from which even women were by no means free.

Some of the pictures which, in the course of his disquisitions, Tryon incidentally presents of English domestic economy two hundred years ago are startling enough in their revelations of disgusting uncleanness and filth. Plenty of fresh air is Tryon's constant recipe for comfort, and remedy against foulness and disease. He has, and it is an indication of the manners of the time, eleven recipes for the destruction of the various vermin which abounded in English houses; and above them all he seems to prize the oft-repeated caution, "But do not forget to let into your rooms your

friend the air." His great ambition seems to have been to cause his countrymen to forego the enervating luxuries of all kinds to which they were addicted, and to enure themselves to such conditions of life as would result in their becoming a strong and hardy race of men and women. By the use of the appropriate sorts of food and outward conditions, "you may change and alter nature as you please, either for the better or worse." The object of his writings was, by recommending a plain, wholesome diet, and hard, unpampered and cleanly living, to improve both the physical and moral welfare of his countrymen. "But if," says he, "you will be so habituated and wedded to your unhealthful customs, that you value not whether nature be weak and impotent, tender and unhealthy, then you may mix your food with all the varieties that the East and West Indies produce, you may make your drink as strong and cordial as you list, you may make all your preparations *a la mode de France*, you may boil and roast all your food to pieces, till there can be no more nourishment; then you may wrap yourselves up in furs, and wear a brace of night-caps, and bury yourselves every night over head and ears in a down-bed, barricado'd with a double range of curtains, keep your houses close, and be sure that you screen yourselves up by a lusty coal fire, and fortify your windows with those shutters that you may see no light, nor feel any air; and when it is nine or ten o'clock in the morning, look that you have a good rousing fire in your chambers, and a breakfast ready, and two or three hours after let a plentiful dinner of varieties be made ready, with strong and enflaming liquors. This is the trade that many thousands of this nation use, as if they studied to bring diseases upon themselves, and to dig their graves with their own teeth; for in the midst of their affluencies, wherein they esteem themselves happy, they are most miserable. But, on the contrary, they who would have

and preserve their strength and a firm health both of body and mind (which of all terrestrial pleasures is the greatest), will observe these rules : first, " Let your meats and drinks be simple." Next—" Use moderate exercise and labour." Further—" As to wearing of clothes, let them be neither too warm nor too thin, of the two the latter is the best."*

Diet, apparel, and exercise are accordingly the three main subjects of Tryon's writings, in his capacity of Physiologus. A large part of the *Way to Health* reads like a cookery book, the dishes which he recommends being seasoned, in default of other spice, with quaint and curious reflections, mixed with mystical speculation. He has too much good sense to limit the range of his remarks to directions for a purely vegetable diet, but thus frankly states his object: " Though I have before shown the inconveniences of the feeding upon flesh (so commonly and in such excess as is now-a-days practised), and rather recommend the lovers of wisdom and health to the more innocent use of grains, fruits and herbs, yet since there is no stemming the tide of popular opinion and custom, and people will still gorge themselves with the flesh of their fellow-animals, I have thought fit here to give a particular account of each sort of flesh, that at least you may choose that which is most proper for your constitution, and least prejudicial to your health."†

Oxen and cows, for example, he tells us, " are dignified with a sanguine, melancholy nature, a little inclinable to the phlegmatic," and their flesh " being reasonably seasoned with salt, not kept too long, and well prepared by the house-keeper, and moderately eaten, is as sound and healthy a food for strong and working people as any flesh whatever, none excepted."‡ Swine, on the other hand, " are under the dominion of Saturn and Mars, and are of complexion melancholy

* *Way to Health*, 1683, pp. 183-4.

† *Way to Health*, p. 79.

‡ *Ibid.*, p. 85.

and choleric ; their predominant quality stands in the fierce, savage and unclean nature, as their shapes, forms, cries and inclinations do abundantly manifest, by reason of which they would be frightful to behold if they were not made familiar to us." "The uncleanness of this creature does further appear if you burn their fat ; it does send forth a gross fulsome smell, also its flame is not clear and bright, as the flame of other flesh, but of a dimmish brimstone colour, which does arise from the dark poisons in nature ; as is further manifested in charcoal, and also in brandy, and other distilled liquors ; when the sweet oil or balsamic body, with the pure subtle spirits, are by any violence suffocated and destroyed, then the dark, original forms of nature appear ; such things being burned, the flame is not bright and clear, but of a duskish dim and brimstone colour."* "Those that do accustom themselves to the frequent eating of bacon, it does generate a gross strong nourishment, and dull and heavy spirits ; therefore such people are not so brisk and airy, but duller of apprehension than others that eat more airy and thinner food."†

Simplicity in diet, or abstinence from unwise mixtures, constitutes Tryon's primary rule of living. "Nature," he assures us, "is satisfied with a very few things ; but to extravagant appetite all the world is too little. 'Tis true gluttons do often mix all the four elements in one oglio or mighty dish, the beasts and fruits of the earth, fish from the waters, birds of the air ; and instead of fire, because they cannot get the salamander, they put in abundance of hot spices, and gorge themselves with strong wines and flaming brandy. And where all the elements are thus jumbled together, 'tis no wonder if that man find raging tempests in his guts ; nor is it strange, when all sorts of animals are buried in our paunches, that we should quickly die, who

* *Way to Health*, p. 96.

† *Ibid.*, p. 98.

live almost by nothing but deaths.”* The same love of simplicity leads him to prefer to use uncooked vegetables and unboiled milk, “for nothing can properly be said to be raw which nature hath thoroughly prepared; therefore, milk of cows, and wheat, barley, rye, pease, beans, apples, pears and many other fruits of the like nature, if they are full ripe, there is no such thing in them as rawness.” “The wise ancients lived much on what you call raw herbs, fruits and grains, and in general their preparations were more simple than ours commonly used, and consequently more agreeable to nature; and therefore they and their posterity were healthier and lived longer than we in these latter ages.”†

Among drinks, pure cold water, of course, holds the first place in the estimation of our Pythagorean. “Though it be a vulgar proverb—As weak as water: yet I must tell you, water is more strong and sublime than most imagine, for it contains a most ravishing and spirituous excellent balsamic virtue, whence proceeds that pure sweet refreshing quality, whereby it hath power, by its innate virtue, to digest and purify all sorts of food.”‡ Tea and coffee he never refers to. Chocolate is once mentioned, but not much recommended.§ Of the properties of beer and ale he has much to tell us. Those who are unaccustomed to nice distinctions may be surprised to learn that, “as the predominant quality in beer is martial and saturnine, hot and fierce, so, on the contrary, that in ale is solar and venereal, viz., sweet and balsamic, indued with a mild soft friendly nature, and gentle operation.”|| The banished angler, who, on his

* *Wisdom's Call*, pp. 48, 49.

† *Ibid.*, p. 91. Eggs too, he says, are best unboiled.

‡ *Way to Health*, p. 143.

§ *Letters*, p. 100. The coffee house is classed (*Letters*, p. 4) with “taverns and other public places of resort” which it is “a shame to go to,” on account of the idle and loose discourse to be heard therein.

|| *Way to Health*, p. 159.

return, according to the old story, discovered, by a fortunate chance, the mystery of bottled ale, was not aware what mischief he was introducing into the world. "It is a great custom and general fashion now-a-days to bottle ale; but the same was never invented by any true naturalist that understood the inside of things; for, though ale be never so well wrought or fermented in the barrel, yet the bottling of it puts it on a new motion and fermentation, which wounds the pure spirits and balsamic body." "Besides, the bottle tinges or gives it a cold hard quality, which is the nature of glass and stone, and being the quantity is so small, the cold saturnine nature of the bottle has the greater power to tincture the liquor with its quality. Furthermore, all such bottle-drinks are infected with a yeasty, furious, foaming matter, which no barrel-ale is guilty of."* Truly, after this we may devoutly exclaim, when tempted to imbibe this saturnine and furious drink: "Away, you bottle-ale rascal!"†

In company with ardent spirits, tobacco falls under Tryon's condemnation, "it being a strong martial and saturnine herb, of a loathsome, poisonous nature and operation, whose predominant quality is of a contrary nature to the stomach and natural heat; therefore, the first taking it in pipes is both difficult and troublesome to nature."‡ While treating tobacco as a medicine, which "makes a most excellent ointment, and is much safer being applied outwardly, than inwardly taken," Tryon deplores its almost universal use by high and low. "It is not above sixty or seventy years ago, since that only gentlemen, and but a few of those, took tobacco, and then so moderately, that one pipe would serve four or five, for they handed it from one to another . . . but now every ploughman has his pipe to himself." Nor is this the worst: "Nay, some of our reverend divines

* *Way to Health*, pp. 163—164.

† 2 *K. Henry IV.*, ii. 4.

‡ *Way to Health*, p. 69.

themselves will smoke as intemperately as any of the vulgar."*

These particulars may suffice to illustrate the applications of Tryon's principle that "everything, be it what it will, never fails to confederate with and beget its own property, both in meats, drinks and communication;" that, "as the foods and drinks are clean and unclean, either in quality or quantity, such is the man;" and that "therefore eating and drinking is one of the greatest sacraments, and ought to be done with the greatest awfulness, devotion and thanksgiving," since "the first false step man made was the eating the forbidden fruit, unclean food."†

Tryon's precepts respecting lightness and simplicity of attire scarcely prepare us to behold him laden and dignified with the flowing periwig which adorns his portrait. Perhaps, in his hours of business or undress, he loved the coolness of a well shaved crown. At any rate, he is very emphatic in his remarks upon the evil of close and heavy clothing, and the folly of expensive dress. Personal luxury, and even the use of artistic ornament for its own sake, he visits with his severe reprobation. Art finds no friend in this stern lover of nature. He denounces with his accustomed vigour the "vanity of laying out perhaps several hundred pounds on jewels and stones which you unjustly call precious (since they have in truth no other intrinsic value but what wanton fancy or imagination puts upon them); or on the pictures or images of those you never knew, for no other reason but that they were a great master's works or artfully done, though they cannot be compared either for shape or beauty, or any other excellency, to the meanest animal or vegetation. So that I dare affirm a butterfly or tulip, the work of nature (which is the art of God), is vastly more to be preferred to our wonder and esteem than the most curious

* *Way to Health*, pp. 165, 168.

† *Knowledge of Man's Self*, pp. 5, 63, 64, 72.

piece that ever Titian, Van-Dyke or Lely could boast of. And yet for these apish shadows some lay out a thousand or two thousand pounds, to furnish a parlour or a long gallery with a few old rusty pictures, representing some heads that perhaps, when living, had little more wit than his that buys them. Half a score skulls or skeletons were a more useful ornament, instead of these and other the like vain need-nots. How much better and more manlike were it to bestow their money upon those who are the living images of their Creator, the poor and needy, to feed their bodies and relieve their minds, by maintaining helpless widows, and taking poor fatherless children, and maintaining and bringing them up as their own, to all kinds of necessary learning and useful arts? ”*

So much for the adornment of houses. In close connection with much of the art and splendour whose use he deprecated, Tryon discerned the presence of much real discomfort. Take, as a specimen, his observations on beds. “ There are many thousands of brave finical dames in this nation that are so curious in their houses, and in whitening their linen, that they themselves can hardly tell what will please them ; and yet after all they lie on beds that do really stink,” &c. “ The same beds are often continued for several generations without changing the feathers, until the ticks be rotten.”† It is necessary to be sparing of the nauseous particulars which crowd his remarks on this topic.

The prevalent treatment of the sick emphatically calls forth Tryon’s reprobation. He has no more love for physicians than our old friend Muggleton, but acutely ridicules “ Goodman Doctor ” and his mixtures, and would have every man become his own herbalist, and assist nature by simple

* *Wisdom’s Call*, pp. 40, 41. Titian and Lely are here misprinted Titilian and Lilly.

† *Way to Health*, pp. 247—248, 583—584.

remedies. "What a deplorable condition are the sick in, when most of the things ordered and prescribed by physicians and apothecaries are generally nauseates to nature! So that when we would describe a filthy, abominable taste, we say it tastes like physic, or like a medicine. 'Tis enough in all conscience to make a well person heartsick, to be confined but two or three weeks to the circumstances a sick body is subjected to by these men of method, and their tutored creatures the nurses. For, first he must have all his drink boiled forsooth, with a crust of bread in it; this, too, he must drink as hot as may be endured; and mistress nurse, for pure laziness, will make at once as much fulsome slip-slop as will serve a whole day and night; and so the poor languishing creature must take it heated again and again. Then Gaffer Doctor enjoins him every two hours a quantity of his sick cordial. And, to complete the tragedy of his martyrdom, there must be a rousing fire in the room, though it be at Midsummer; the curtains must be drawn close, and a cloth before the windows, so that there can scarce come the least breeze of wind or pure air into the room, whence the imprisoned air therein becomes sulphurous, and so noxious that such chambers send forth such strong fulsome scents and fumes as will disorder the most healthy, if they continue there but a while. These are some of the abominable (I had almost said murderous) courses the poor sick are confined unto."*

In his recommendation of exercise, Tryon is no advocate of an athletic discipline. Hunting, fishing, shooting and the like sports are of course forbidden by him, as partaking of a murderous, nay even of a devilish, nature. Nor does he anywhere propose riding, swimming, bathing, running, or anything harder than steady walking, as an exercise conducive to robust health. Though he abhors idleness, as leading to

* *Way to Health*, pp. 241—242.

luxury, he is no friend to severe bodily exertion for its own sake. A quiet, easy, placid life evidently constitutes the ideal which possessed his soul. He seems to dread all the occasions which bring men together in multitudes, and displays a plaintive and moving eloquence in discoursing on "the excellencies of solitude, and the advantages of a retired country-life." For, as he tells us, "in open serene airs, as in fields, mountains, and by river sides and woods, there is no tumult, no stabbing of heaven with dreadful oaths, horrid curses, and frightful execrations; no banishing of temperance with drunken healths, and roaring huzzas; no fulsome fumes of tobacco, nor viler steams of detestable brothel-houses to infest the chaste air; no plays or vain games, no mistressing nor revelling to spend precious time; no clattering of coaches, drums, fools, fiddlers, &c., that make such a continual din that a man can hardly call his ears his own. But, on the contrary, all is sedate and serene, still as the voice of good spirits, and quiet as the birth of flowers; no noise to be heard but the ravishing harmony of the wood-musicians, and the innocent lowings of cows and neighings of horses and bleating of the pretty lambs, or the like natural tones, wherein there is nothing of disturbance or danger, because nothing of evil, but everything praising the Creator according to the capacity and nature of each. Here it was, in these and like places, that the good angels of the Lord appeared unto the sons of Wisdom, and taught them the true knowledge of God and nature of things, and showed them what should come to pass in future times. And whoever will obtain the true apprehension of God, of Nature, and of himself must be separated, and choose sometimes to sequester himself from the tumults, confusions and distractions of the public world, and crowds of the chaffering and bustling rabble."*

* *Way to Health*, pp. 260-261.

The inward and spiritual side of Tryon's philosophy forms the chief subject of his later works. One of the most curious of these is a treatise on visions (1691), which is entitled *Pythagoras his Mystick Philosophy Reviv'd; or, the Mystery of Dreams Unfolded, &c.* In an unsystematic form this little treatise presents us with most of the distinctive principles of Tryon's theosophy. Thus he develops, as the key to the mystery of creation, the principle that "the immortal world" is that "whence all material things take their birth; the inward being the life, and the outward but as the body."* The clue to revelation, again, is found in the principle that "Man is the complete image of God and Nature, and contains the principles and properties of all things corporeal and incorporeal."† He is "the image of the immense Creator, and epitome of the whole created bulk of Nature."‡ With regard to the particular subject of the treatise, dreams and visions, the influence of which was, as we have seen, very strongly exerted upon his childhood, he is by no means disposed to treat them as the offspring of human imagination, or the fruit of physical conditions. Some dreams may receive their sufficient explanation in these and similar ways, but in general they are the result of actual visits made by angels, good and bad, or by the souls of the departed. These angels and spirits come not arbitrarily to the active souls of sleeping men, but are attracted by a definite bond of sympathy. And, in addition to casual visitors, a guardian angel attends upon each one; "for every man in the world hath either a good or evil internal companion or genius, that he adheres unto, of the nature of that property that has the chief government in his life; and this genius does mightily prompt and forward all such things as his principle, quality or complexion inclines him unto; and, as men alter in inclination, either to good or evil, so their genius

* *Pythagoras Revived*, p. 99. † *Ibid.*, pp. 26—27. ‡ *Ibid.*, p. 47.

grows stronger or weaker.”* The sixth chapter, which professes to explain “how departed souls communicate with persons living, in dreams and sometimes in apparitions; the converse of good and bad angels with men, how promoted, &c.,” might almost serve as a partial exposition of the doctrine of modern spiritualism. Appended to the work is a short discourse on the causes, nature and cure of madness, which is worth noticing for its strong advocacy of a more humane and gentle treatment of the insane than that which unhappily prevailed within the walls of New Bethlem, at a time when the ravings of the poor distracted inmates were exhibited as a sport for the benefit of a staring rabble. Tryon moralises on the show by observing that, after all, there are more mischievous frenzies than the fancies of the insane. “To speak truth, the world is but a great Bedlam, where those that are more mad lock up those that are less; the first, presumptuously and knowingly committing evils both against God, their neighbours and themselves; but the last, not knowing what they do, are as it were next door to innocency.”†

A much fuller and more varied development of Tryon's views on the chief questions of ethics and theology is to be discovered among the miscellaneous contents of a very interesting collection of thirty-seven *Letters*, on subjects philosophical, theological and moral, published in 1700. Here are to be found recipes for making of bricks and of flesh broths. Here, too, are curious and subtle speculations of a mystical sort. Of this kind is that singular disquisition on the Burial of Birds. These winged creatures Tryon looks up to, both as being more heavenly and ethereal in their original constitution than other animals, and also as less depraved than others by subjection to men, since “this is most certain, that the more entire any creatures keep themselves

* *Ibid.*, pp. 157—158.

† *Ibid.*, p. 286.

from communicating with mankind, the more they keep or act within the circle or limits of their own original or first love wherewith their Creator bound them." Hence he deems that "it may fairly be inferred that birds, upon the approach of their death, do withdraw themselves from human view to some regions or places not only unknown but invisible to us."*

The two main subjects, however, of Tryon's *Letters* are education and religion. He had proved already his strong sense of the need and value of education by printing, in 1691, his "humble proposal to the honourable Sir Thomas Lane, Lord Mayor, the court of aldermen, merchants, citizens, &c., of the City of London, for the erecting of twenty free schools in the poor parishes in and about the said city, for the education of poor children whose parents are not able to pay for their schooling."† He held very strong opinions as to the effect of education, and ascribed to the misdirected influence of early custom and training, many of the defects and evils, as he esteemed them, which were common among men as he knew them. His system of education, could he have seen it fully realized, would have been exacting and harsh. It is singular that a man who was himself a father, and we are told a generous one, a man who betrays, moreover, a keen sympathy with the natural and artless ways of the lower animals, the "undergraduate creatures," as he terms them, should have so entirely failed to comprehend the nature and the wants of children. He formally condemns, as a mischievous practice, "the common and frequent kissing of children, by mothers, nurses, and all who will, even from the very birth," seriously assuring us that "children, in their own nature and inclination, have for the most part an aversion to this privileged sort of boldness," and maintaining that "this is a thing of greater

* Tryon's *Letters*, pp. 223, 226.

† *Miscellania*, p. 156.

moment than is generally understood, it being the first breach made on innocency, modesty and good manners," and "attended with a multitude of unseen evils."* With equal gravity he alleges, as another instance of the power which seeds sown in infancy obtain, "that unaccountable or untuned tone or voice called laughter, which is become common through a great part of the world, and much more of late years than before; and the making and sounding forth this sort of noise is more particularly used and practised in Europe; for many of the Eastern nations are astonished at this gesture, and wonder what the meaning of it is, and the occasion thereof." He considers "it is not at all to be doubted that, if children did never hear loud laughter, they would never laugh aloud."† He further accounts it "a grand mistake in all parents and tutors of children to let their children play, to refresh and make themselves more agile and lively." Nothing, in his view, does so much dull and becloud their spirits as such various sports. Instead of them he would methodically parcel out the child's day among the several sorts of learning, "not exceeding one hour at a time for one sort of art, and though the same sort might come in the afternoon as in the morning, yet they should spend but one hour at a time, by which means they might learn six several sorts of arts and sciences in one day, viz., language, writing, singing or other sorts of music, some useful parts of the mathematics, and gardening, knitting or sowing; the meaner arts to spend the less time in; by which the whole day would be nothing but a play or diversion."‡ True to this scheme of unremitting employment, Tryon would have every child accustomed to use the right and left hands indiscriminately, holding that to confine the burden of the work to a single hand was a pernicious and unnatural limitation.§

* *Knowledge of Man's Self*, pp. 131—132.

+ *Ibid.*, pp. 129—130.

† Tryon's *Letters*, p. 108.

§ Tryon's *Letters*, p. 93.

Of our author's views on religion, the following brief compendium may be a sufficient specimen. "As there is but one only God, so there is but one law and one religion . . . Now the principles and materials of true religion are these : First, to believe and acknowledge this only God to be the fountain of all beings,—nay, very Being itself, for all other things are said to be or exist only in a derivative and metaphorical sense,—that he is the Creator of all creatures, and the Preserver of his offspring. Secondly, to observe the rules of justice, mercy, clemency and charity, which he has prescribed and commanded; to be just and faithful stewards of all things put under our government; as much as in us lies to avoid all violence, cruelty, uncleanness, intemperance and disorder; and to do to all God's creatures as we would be done unto, knowing that we must be accountable for all these things to the grand and chief Possessor and Lord. This is undoubtedly the sum of true religion, which all or most nations agree in and consent to. The first step is the knowledge of God in man's self, for he that does not understand the principles and qualities he is compounded of, cannot be a true worshipper, nor direct others in the paths of unity, nor apprehend anything aright."* The meaning seems to be that the underlying essence of all real religions is the same, for "God knows no names, but natures." Revelation runs parallel with creation; "the whole visible world is nothing else but the great body of God, which was made by his eternal love and power, and is ever sustained by the same; and as God preserves the macrocosm by his everlasting Fountain of Light and Love, in the very same manner he doth the microcosm man, or little world, which contains all the true properties of the great. So that the power of the eternal Son of God and Fountain of all beings is not limited to any specific body." This power, or fountain of light and

love, "did not only dwell in the human body of Jesus Christ . . . but the very same united Fountain has been an inhabitant amongst the sons of men, even from the beginning, and is the eternal Son of the great Creator." Thus, "to know Christ is to arrive at the true knowledge of God in ourselves; for the manifestation of Christ, or the Son's power in the flesh, is the right distinction every man makes in himself of God's eternal Voice of wisdom, love and mercy, &c., that directs us in the paths of true virtue."*

In the last year of his life, Tryon published, as his final contribution to ethical and religious philosophy, a work entitled *The Knowledge of a Man's Self the Surest Guide to the True Worship of God, and Good Government of the Mind and Body*. This he described as the second part of the *Way to Health*, which had preceded it by twenty years. Few persons, whatever the measure of their agreement with its reasonings, could peruse this last work of Tryon's without pronouncing it to be a weighty and noble book. It forms a complete compendium of Tryonism on its speculative side, and is the work which would necessarily fall to be analyzed by any one who was desirous of examining the author's theosophic system with any minuteness. Such an examination, having due regard to the writer's leisure and the Society's patience, it is not proposed on the present occasion to attempt. When, too, it is recollected that after all Tryonism is but Behmenism at second-hand, in a more intelligible form, it becomes evident that the subject would necessarily launch us into much wider discussions than could be satisfactorily treated towards the close of a paper. The man Tryon himself, it has been the object of this Paper to portray, by the aid of such materials as could be procured to throw light upon his history, his energy, and the working of his thoughts. This, besides being the most interesting, is also

* Tryon's *Letters*, p. 66.

the most instructive side on which to approach him. Even in the case of philosophers, character is better worth studying than theory.

Before concluding, however, it is necessary to take some further notice of the very singular collection of Laws for the Tryonist "Society of Clean and Innocent Livers," which was left in MS. by our author, and published along with the fragment of his memoirs. One cannot for a moment believe that the community depicted in these stringent enactments ever attained an actual being in the world; yet, as showing what a modern Pythagorean regarded as the ideal state of civilized society, they deserve to be disinterred from the obscurity in which they have long been buried. These Laws consist of seventeen general principles of faith in God; followed by thirty rules of conduct, applicable to the whole community, and eighteen enactments intended especially for women.

In the seventeen principles are laid down the initial truths of a somewhat dry and wordy theism, which does not here, as in the extracts quoted from the *Letters*, reveal the links of its Christian origin. Still less does it assume the definitely Christian character which characterises the statements of doctrine in the *Knowledge of Man's Self*.* Practically the theology of this code resolves itself into these few points of doctrine: that God is the creator of all; that he has implanted in every man an eye or ray of divine light; and that the chief way of worshipping him is by adhering to the holy Voice of Wisdom, which speaks in every soul. After this follow the special directions and maxims, many of which are of so singular a character as to bear out the presumption that this Code of Laws could not have come to anything except upon paper. This will be better shown by actual quotation.

* See the chapter *Of True and Universal Religion*.

" 1. Thou shalt not kill, oppress, hunt, hurry, nor offer any kind of violence, either to mankind or any creature, either of the air, earth or water; they all bear thy Creator's image and have his laws of Order, Number, Weight and Measure stamped in the centre of their lives. . . . They are thy brethren, having the same Father, Creator, and Preserver with thyself, and participate equally with thee, according to their natures, of his care and influence."

Notwithstanding this, Tryon does not hesitate to give, in the *Way to Health*, several "easy but sure" recipes for the destruction of vermin.

" 2. Thou shalt not eat the flesh, nor fish, of any living creature whatsoever, nor defile thyself with their dead bodies.

" 3. Thou shalt not boil, bake, or prepare any sort of food in the vessels of those that eat any living creature or unclean food; nor shalt thou eat on the platters or dishes where such or any other unclean thing has ever been; neither shalt thou sit down at table with those that eat flesh or fish.

" 4. Thou shalt not drink any sort of strong drink, wine, distilled spirits, or the juice of any fruit or grain fermented; but water shall be thy drink, which thy Creator has ordained for the beverage of all living creatures whatsoever. Neither shalt thou chaw or smoke tobacco, take opium, or any intoxicating dosing thing.

" 5. Thou shalt not use the skins of any living creature for shoes, gloves, saddles, or any other thing whatsoever. Thou shalt not lie on down or feather beds, nor on the beds of such as eat flesh or fish, or drink strong drink.

" 6. Thou shalt not intermarry with such as do not strictly adhere to the rules of innocency, temperance and cleanness. Let not thy sons take their daughters in marriage, nor give thy daughters to their sons."

The letter of this strictness was scarcely in accordance with the example of Tryon's own marriage, as already narrated. Very particular directions follow respecting the times and conditions of marriage. It is defined as part of the duty of all parents and guardians of children "to marry them before they be twelve years of age"; such marriage,

however, not to take effect "till the man be twenty-one and the woman seventeen years of age." Among the restrictions on marriage may be mentioned a prohibition of the union of cousins; a declaration of the unlawfulness of third marriages; and a proviso that "no man shall marry after he is sixty years of age, nor woman after she is forty-nine, on any occasion or pretence whatsoever."

The next three articles of the code deal with the just distribution of property. Every father is enjoined to make his daughters equal sharers with the sons, and the younger children with the eldest; "but, if any of thy children transgress the laws of innocency and cleanness, and defile himself, dishonouring and disobeying thee, then thou shalt not give him any portion or share of thy goods, unless with great submission he acknowledge his fault, and forsake the evil."* Disputes about property are to be settled by arbitration; and a register of the decision kept by the Public Notary, who also shall enter a record of all bargains, contracts, buyings and sellings, amounting to twenty pounds and upwards; all titles and sales of estates, &c. The Governors or Heads of the Society are to meet yearly, on the Founder's birthday, to choose their successors. No Governor may remain in office above one year, or receive any salary or profit from his place. The number of these Governors is not stated; but, in addition to them, there are to be Deputies or Inspectors chosen, one for every ten families. The election is to be by a curious system of balloting, "and, during the election, there shall be a strict silence kept, not one word shall be spoken." Tryon believed, as he tells us in his *Knowledge of Man's Self*, that "Truth and Silence are brethren;" but Englishmen in general would probably

* Can it be that this latter clause explains the non-appearance of the names of Tryon's two sons and third daughter in his will? Or is it more probable that they died before him?

question the wisdom of introducing such a simple-minded clause as this into any Act for the better regulation of municipal and parliamentary elections.

Next follows a directory for public worship :—

“ 20. You shall keep one day in a week as a Sabbath, that is, you shall set apart one day in a week for prayer and worship of the Creator, which day shall be Sunday, or any other day that the public Government has ordained. On this day thou shalt do no work; thou shalt prepare thy foods the day before. On the Sabbath day the Society shall meet together and spend two or three hours, forenoon and afternoon, in prayer and reading over these Laws, which may be done by the Governor, or any of the Deputies over ten families. But, both before and after reading and praying, there shall be a profound silence for at least half an hour, that each person may the better compose himself, and consider and meditate the secret mysteries and active powers of his Creator.

“ 21. No one that speaks in the meeting shall take any text, or at any time make any interpretation or commentary on these Laws; neither shall you meddle with the religions or opinions of other people.”

This non-interference with the opinions of others is worthy of all honour; but it seems carried to an insufferable pitch of narrowness in the next clumsily written rule.

“ 22. You, nor any of you, shall read any books not written by those of your own Society, and that live in the practice of order, temperance, innocency and cleanness.”

Some enactments against evil speaking follow. Among them is a rule for the punishment of lying, which is truly Pythagorean in its character.

“ 25. Thou shalt not forge, tell, nor make a lie; whosoever shall be guilty thereof shall separate himself and retire alone, and shall not speak for seven days, nor eat anything but bread, drinking water during the seven days.”

But worse even than lying, if we may judge by its penalty, is the vice of profane swearing :

“ 26. Whosoever shall swear, either by the heavens or the earth or anything therein, shall retire alone for forty-one days ; he shall not speak one word during the time, nor eat anything but bread.”

The list of rules proceeds to the enforcement of honesty in dealing ; the limitation of labour to nine hours a day ; the restriction of meals to two in the day, viz., at eight or nine in the morning, and four or five in the afternoon, with the recommendation of half an hour's singing (in praise of the Creator) before and after each meal, and the injunction, by way of grace, of “ a silent pause for about three minutes,” and a few words of moral and religious exhortation from the head of the household.

Tryon's laws relating to women are inspired by a wiser discretion than that which promulgated some of the preceding enactments. Most of them have reference to the management of children ; and of these the following may be selected as worthy of notice and commendation.

“ 4. Let your houses and rooms be adorned with the pictures of the innocent beauties of young children, especially the rooms where you lie.”

So that, with all his contempt for Titian, Van-Dyk and Lely, Tryon could honour and approve, if he might choose his own subjects, the softening and humanising influences of art.

“ 7. When your children are near one year old, do not handle or lead them to help them to go, but let them tumble about at their pleasure in a clean room, whereby they will be so much strengthened that they will go much sooner than if they should be led.”

“ 10. Accustom your children to speak but one at a time, and not two or three together, as is common ; and let them not contradict the speaker, or interrupt him, till he has done speaking. Parents may

make this familiar to children if they set them the example by their own practice.

" 11. At a year and a half or two years old, show them their letters; not troubling them in the vulgar way, with asking them what is this letter or that word, but instead thereof make frequent repetitions in their hearing, putting the letters in their sight. And thus, in a little time they will easily and familiarly learn to distinguish the twenty-four letters, all one as they do the utensils, goods, and furniture of the house, by hearing the family name them."

Plays, romances and the like are, of course, forbidden to this austere community, "as also the singing of all kinds of love-songs, or setting them to any instrument of music." This is hard upon the youth of both sexes. What will the ladies say when they find they are strictly enjoined to "keep one fashion in their garments or apparel, which shall be grave, decent, easy and convenient," and prohibited the use of "superfluous trimmings" and "fantastic ornaments"? What will they say when they are not only told in Scripture phrase, "your garments shall not be mixed, viz., of linen and woolen or the like;" but also, "you shall not make yourselves any garments, nor any sort of furniture for your houses, or any sort of utensils, of the skins of any animals; neither shall you use the fat of any animal, either for candles, soap or any other use"? And, whatever be the close customs of the East, it will not be easy to keep in check the indignation of our English ladies when they find it laid down:

" 17. All women above the age of seven years shall be veiled when they go abroad. This will not only mightily preserve the female beauty's power, but advance the natural esteem, and render them more valuable."

Perhaps the subjects of these severe restrictions may feel in some measure propitiated on finding that the laws of the Tryonist Utopia thus conclude:

" 18. No girl, maid, nor woman shall carry burdens, do any field

labour, sell nor cry anything about the streets, nor do any dirty work. All robustic labour shall be done by man ; the fair sex are naturally unfit for dirty, mugging employments. Besides, the preservation of mankind principally depends on the good education and discreet conduct of women, whose noble characters of beauty, innocency, and tender affection are sullied, and as it were obliterated in many of them, by their being employed about unclean things and hard, dirty, slavish labour. And therefore women should be allotted all clean, easy employments."

And, after all, in spite of his unfashionable advice and opinions, Tryon did secure the esteem and friendship of many women, as his *Letters* show. Of all the testimonies to his merit, one that might have been least expected, is a copy of commendatory verses, from the pen of that ornament to her sex, Mrs. Aphra Behn, one of the most voluptuous novelists and playwrights in a voluptuous age. Yet this distinguished lady endites no less than fifty-six lines "on the Author of that excellent and learned book entituled the *Way to Health, Long Life and Happiness*;" addressing him in the rapturous exclamation :

Hail, learned Bard ! that dost thy power dispense,
And show'st us the first state of innocence !

And concluding with the enthusiastic lines :

Let fools and madmen thy great work condemn ;
I've tried thy methods, and adore thy theme —
Adore the soul that could such truths discern,
And scorn the sots that want the sense to learn.

In the following attempted list of Tryon's works, those which are placed in brackets have not yet been seen by the author of this Paper.

1. [*Treatise on Cleanliness in Meats and Drinks*. 1682. 4to. (Watts.)]
2. [*Good Housewife made a Doctor*. 1682. 8vo. (Watts.) 1692. 12mo. (Lowndes.)]
3. *Way to Health*. 1683. 8vo., pp. 669. 2nd Edition, 1691, 8vo., pp. 500.
4. *Dialogue between East Indian Brackmanny and French Gentleman*. 1683. 8vo., pp. 22.
5. [*Countryman's Companion, or, New Method of Ordering Horses and Sheep*.]
6. [*Friendly Advice to Gentlemen Planters of East and West Indies*. 1684. 12mo. (Lowndes.)]
7. *Wisdom's Call to Temperance and Frugality*. 12mo., pp. 130. N.D. (1685. Lowndes.)
8. [*Monthly Observations for Preservation of Health, by Philotheos Physiologus*. 1688. 8vo. (Watts.) 12mo. (Lowndes.)]
9. *Pythagoras his Mystick Philosophy Revived*. 1691. 12mo., pp. 299.
- Treatise of Dreams and Visions*. 1695. 12mo. The same as the preceding, with a new title-page.
10. *New Art of Brewing Beer, Ale, &c.* 2nd Edition. 1691. 12mo., pp. 137.
11. [*Pocket Companion*. 1694. 12mo. (Lowndes.). Selected from *Good Housewife*. (Watts.)]
12. *New Method of Educating Children*. 1695. 12mo.
13. [*Wisdom's Dictates*. 1696. 12mo. (Lowndes.)]
14. *Miscellania; or a Collection of Tracts*. 1696. 12mo., pp. 168.
15. [*Way to save Wealth*. 1697. 12mo. (Lowndes.) Another edition (?). *England's Grandeur, and Way to get Wealth*. 1699. 4to. (Watts.)]
16. [*Averroes' Letters to Pythagoras*.]
17. *Letters, Domestick and Foreign*. 1700. 8vo., pp. 240.
18. [*Brief History of Trade in England*.]
19. *Knowledge of a Man's Self*. 1703. 8vo., pp. 512.
[*Knowledge of a Man's Self*, the second vol. (Included in preceding ?)]
20. *Memoirs*. 1705. 12mo., pp. 162. [2nd Edition, 1708. 8vo. (Lowndes.)]

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